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ABSTRACT

The course of related study in the carpentry trade is designed to meet the need for organized study in the various technical aspects necessary for an apprentice to become a well-trained journeyman. Divided into four one-year programs, the instructor's manual for the first year presents lessons on familiarizing the student with the trade and its related aspects, and lessons on tools, materials, scaffolds and staging, basic blueprint and plot layout, and foundations and slabs. Topics covered in the second year are rough framing, roof framing, and stair construction. Third year topics are exterior covering, trim, and insulation; interior finish; timber structures; and concrete construction. Blueprints, the basic principles of estimating and instrumentation, and an analysis and review of all four years of related instruction compose the elements of the program's fourth year. The lessons in the second, third, and fourth volumes are preceded by an up-dating of information on worker-related legislation, both at the State and at the Federal level. Each lesson outline includes lesson objectives, references, visual aids, study assignments, important study points, work assignments, an introduction to the next lesson, and a material list for the next lesson. (AG)

CARPENTRY
Apprentice Related Training

INSTRUCTOR'S MANUAL
1ST YEAR of a 4 YEAR SERIES

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION
VOCATIONAL EDUCATION
V E
STATE OF WASHINGTON

P 73-17

FOREWORD

The Washington State Coordinating Council for Occupational Education, Trade and Industrial Section, is one of the agencies responsible for encouraging the development and promotion of the apprentice training program in this state and, under existing state law, is responsible in cooperation with local schools for providing technical and related instruction for all registered apprentices.

This course of related study in the Carpentry trade is designed to meet the need for organized study in the various technical aspects necessary for an apprentice to become a well-trained journeyman. The apprentice who works hard at learning his trade on-the-job, and who masters the related instructional material included in these lessons will master his trade and become a real asset to his trade and his community.

Arthur A. Binnie
Director and Executive Officer
Coordinating Council for Occupational
Education

ACKNOWLEDGMENTS

The Washington State Coordinating Council for Occupational Education, Trade and Industrial Section, recognizes the valuable contribution made by the Revision Committee representing the Carpentry trade in reviewing, revising, and updating the apprentice-related instruction material contained in this unit of the four-year related instruction curriculum.

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We further wish to acknowledge the encouragement and support given by members and staff of the Washington State Apprenticeship Council, the Washington State Council of Carpenters, representatives of the United Brotherhood of Carpenters and Joiners of America, representatives of the Associated General Contractors and of the Master Homebuilders.

Special thanks are extended to Coordinators Bob Buckingham and Leonard Liebelt; and to Mr. Earle Bennett, Project Director, who kept us all working to complete the project; to Mr. Steve Bishopp, Program Specialist, CCOE, who designed the covers and handled the printing arrangements; and to the T & I secretarial staff, who spent many hours in typing and other support work.

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INTRODUCTION

The Carpentry Apprentice Curriculum Revision Committee started work on September 25, 1971, and worked diligently on the revision of the four-year related training course.

Outmoded trade practices were omitted. New trade trends were included and time adjustments were made to make the practical use of the 144 hour per year of apprentice related training time.

New decimal page numbering is being used to facilitate updating the manual in the future without the necessity of reprinting and renumbering the entire manual.

An example of the numbering is as follows:

Unit Number	Lesson Number	Page Number
02	.14	.01

Hense the above page number, 02.14.01, will read:

02 for Unit 2: Tools
.14 for the 14th lesson of the first year
.01 is the page number for the first page of that lesson

Note:

A. Lesson numbers for each year are 1 through 36.

B. Page numbers are for each lesson, 1 through the number of pages for that lesson.

C. It is recommended that copies of the students' information sheets will be made available in separate printing for use as handouts to each apprentice in training classes.

D. The complete instructor's manual is intended for the use of instructors only.

REFERENCES

Carpentry Apprentice Training Course, United Brotherhood of Carpenters and Joiners of America.

Safety Standards for Construction Work, (Red Book) Washington State Department of Labor and Industries

Modern Carpentry, by Wagner, Goodhert-Willcox, So. Holland, Ill.

Safety Requirements for Explosive-Actuated Fastening Tools, Washington State Department of Labor and Industries.

Douglas Fir Use Book, West Coast Lumberman's Association.

Heavy Timber Construction Details, American Institute of Architects, File 19B.

Drywall Construction Handbook, U. S. Gypsum Company.

Concrete Technology, Portland Cement Association.

Architectural Graphic Standards, Ramsey and Sleeper.

Practical Problems in Math for the Carpenter Trade, Delmar Publishers.

VISUAL AIDS

Transparencies as available, U. B. of C.

Slide Series, Use of Metal Studs, U. B. of C.

Film (32 min.) How to place, Finish, and Cure Quality Concrete, Portland Cement Association

Film Safety in the Construction Industry, Washington State Department of Labor and Industries.

Film, Miracle in Wood, American Plywood Assoc., 1119 A St., Tacoma, 98401

Film, Tamap Roof Sheathing, American Plywood Assoc., " " "

RELATED INSTRUCTION FOR CARPENTRY APPRENTICES
INDEX - FIRST YEAR

UNIT 1: FAMILIARIZATION

01.01.01 1. The Apprenticeship Training Program and History of Labor and Management

01.02.01 2. History and Ethics of the Trade

01.03.01 3. How to get Along with your Boss, Fellow Workers, and Yourself; and What an Employee can Expect

01.04.01 4. Grievances

01.05.01 5. Legislation Affecting the Worker

01.06.01 6. Construction Safety

01.07.01 7. Mathematics of the Trade: Part I

01.08.01 8. Mathematics of the Trade: Part II

UNIT 2: TOOLS

02.09.01 1. Trade Terms and Safety Hints

02.10.01 2. Measuring, Guilding, Testing, Layout, and Marking Tools

02.11.01 3. Tooth Cutting, Edge Cutting, Smooth Facing, and Boring Tools

02.12.01 4. Fastenings and their Tools; Holding and Supporting Tools and Devices: and Prying Tools

02.13.01 5. Sharpening Tools

02.14.01 6. Power Tools

02.15.01 7. Powder-Actuated Tools

UNIT 3: MATERIALS

03.16.01 1. Wood

03.17.01 2. Lumber (With Board Measure)

03.18.01 3. Lumber: Substitutes - Plastics, Metal, Etc.

03.19.01 4. Plywood, Paneling, and Laminates

03.20.01 5. Concrete: Use and Placement

03.21.01 6 Adhesives and Fasteners: Part I

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(Continued)

Unit 4: SCAFFOLDS AND STAGING

04.22.01 1. Types of Scaffolding

04.23.01 2. Safety Practices in Scaffold Construction

04.24.01 3. Ladders

UNIT 5: BASIC BLUEPRINT AND PLOT LAYOUT

05.25.01 1. Trade Terms

05.26.01 2. Basic Blueprint Reading: Part I

05.27.01 3. Basic Blueprint Reading: Part II

05.28.01 4. Location of Property Lines, Batter Boards, and Leveling Devices: Part I

05.29.01 5. Location of Property Lines, Batter Boards, and Leveling Devices: Part II and Part III

UNIT 6: FOUNDATIONS AND SLABS

06.30.01 1. Types of footings and Piers

06.31.01 2. Foundation Forms

06.32.01 3. Form Ties, Fasteners, and Accessories

06.33.01 4. Slabs, Screeds, and Hardware

06.34.01 5. Shoring, Bracing, and Stripping

06.35.01 6. Math and Test

06.36.01 7. Review and Evaluation

UNIT 1: FAMILIARIZATION

TOPIC:

The Apprentice Training Program and history of Labor and Management.

LESSON OBJECTIVES:

To explain to the apprentice the overall meaning of apprenticeship, the names and responsibilities of various agencies involved so that he will better understand his responsibility in the training plan in which he is engaged.

REFERENCES:

Information Sheet.
Apprenticeship Standards.
Bargaining Agreement.

VISUAL AIDS:

STUDY ASSIGNMENT:

Information Sheet.
Apprenticeship Standards.
Bargaining Agreement.

IMPORTANT STUDY POINTS:

1. Be able to define: Assignment information sheet, joint apprenticeship committee, apprentice, indenture, related course of instruction, and work schedule.

2. Become familiar with the work experience schedule for your trade.

3. Know the composition of the Joint Apprenticeship Committee and its duties.

4. Be able to compare the original conditions of apprenticeship with the conditions that exist today.

5. Learn when the A.F. of L. was first organized and why it was confined to skilled craftsmen only.

6. Be able to explain the meaning of "bargaining power" as related to labor and management with the two events that took place in 1935.

7. Be able to discuss the general items usually found in a bargaining agreement.

8. Be able to explain how both labor and management are now making proper use of their respective powers.

WORK ASSIGNMENTS: Classroom:

1. Who developed, prepared and approved the related course of instruction that you will study during the term of your apprenticeship?

2. From whom will you receive your training on the job.

3. What types of sheets will be given you by your instructor as an aid in your related class instruction?

4. Before you can be considered a bona fide apprentice, who must sign your indenture?

5. Define the term "indenture" and apprentice, as used in the apprenticeship standards.

6. What is the term of your apprenticeship?

7. What is the ratio of apprentices to journeymen as in the apprenticeship standards.

8. How long is the probationary period of an apprentice?

9. What is the minimum number of hours of related class instruction per year that you are required to attend?

10. Who receives copies of the apprenticeship agreement?

11. How many members compose the joint apprenticeship committee from your area, and who do they represent?

12. How may you adjust any difference between yourself and your employer? Do you have the right to appeal his decision?

13. What did an indenture mean when apprenticeship first started, and what were the usual terms?

14. What are some of the things workers orginally demanded of employers after they joined an organization?

15. What were some reasons why unskilled workers felt the need for organization?

16. What is meant by "bargaining power" between labor and management?

17. How did the passage of the National Labor Relations Act of 1935 affect the future of the labor movement?

18. Define = Closed Shop, Union Shop, Open Shop,and Check off.

19. What should be the ultimate goals of organized and unorganized labor?

20. Name some of the socially effective and acceptable methods management now uses in dealing with its employees.

21. What do you think management has a right to expect for its work, its risk involved, and its capital invested?

22. How have the gains made by organized labor affected the position of unorganized labor?

WORK ASSIGNMENTS: (Continued)

Lab:

Tests:

INTRODUCTION TO NEXT LESSON:

A study of the history and ethics of the trade.

MATERIAL FOR THE NEXT LESSON:

UNIT 1: FAMILIARIZATION

TOPIC: The Apprenticeship Training Program

To the Apprentice:

This course of related instruction for the carpentry trade that you will study during your apprenticeship period was developed, prepared, and approved by men from the carpentry trade representing labor, management and vocational schools.

You will receive training and instruction about the skills required in your trade on the job where you are regularly employed from the journeymen with whom you work. You will receive information about your trade and the reason why in your related class work.

This training plan consists of two types of printed sheets; first an assignment sheet and second an information sheet. An "Assignment" is written for each study topic or lesson. It is a guide to you to help you find the required information about the subject being studied. An "Information Sheet" is written for a lesson only when the desired information cannot be found in the regularly selected textbooks or reference material. Information sheets are prepared on green paper so they will not be confused with an assignment sheet.

Your instructor will assist you in your work on the assignments. Do not consider the work assignment for each lesson as an examination, for it is meant to be a guide to both you and your instructor to help determine whether or not you have learned the key points of the lesson. A formal examination will be given for each unit as soon as you have completed all the lessons of a unit. Your instructor will keep a record of the lessons you have completed and the grades you receive on unit examinations during the term of your apprenticeship.

You should provide yourself with a standard three-ring notebook in which to keep your completed lessons. You will find this information helpful to you not only during your apprenticeship period but also after you are a journeyman.

Always remember that the responsibility of getting your class work done is yours, not your instructor's. He cannot do your studying, he can only assist you. The mechanic who knows why as well as how is always the one who is chosen for better jobs. During your apprenticeship period people will help you on your job and in school, so take advantage of your opportunity. What you do not know after you become a journeyman, you will have to get by yourself at a considerable sacrifice of both time and money.

Each assignment sheet will give you the reason why the topic should be studied; it will tell you where to find the information in the texts and references; it will suggest the important "key points" in the lesson and provide a means for you to prove to yourself and your instructor the extent to which you have learned each lesson.

Ordinarily an apprentice can progress in this course as rapidly as he can successfully complete each lesson.

THE APPRENTICESHIP PROGRAM

In the operation of an apprenticeship program there are several elements that have to work cooperatively if the program is to succeed. These elements consist of labor, management, public schools, State Department of Labor and Industries, State Apprenticeship Council, Federal Apprentice Training Service, Joint Apprenticeship Committee (J.A.C.), apprentice, and instructor.

Every bona fide apprentice who is registered with the State Apprenticeship Council has signed an "indenture" with his employer or labor organization or the Joint Apprenticeship Committee. This indenture is based upon the standards of apprenticeship for this trade. These standards have been carefully worked out through negotiations by labor and management. One of the requirements of the standards is that each apprentice must attend related training classes for a minimum of 144 hours each year of apprenticeship during which time he shall study the prescribed course approved by the Join Apprenticeship Committee.

Your local apprenticeship standards are an important part of your classroom study and shall be carefully examined and discussed.

Apprenticeships: A certain number of promising young men were accepted in each trade as apprentices. Usually these apprentices were put under a master, or "indentured to him," when they were still young boys. "Indentured" means that there was a formal agreement between the master, the apprentice, and the apprentice's father which stated the length of the apprenticeship, the duties of the apprentice, and the wages to be paid by the master. Ordinarily the apprentice lived with his master, worked for and with him. At the end of the apprenticeship, he became a skilled workman, eligible to join a group of workers.

Each skilled trade, such as shoemaker, weaver, chemist, the instrument-maker, had certain standards for qualification as a master craftsman. For instance, the great violin maker, Stradivarius, who had his workshop in Italy, learned the trade from his father, and in turn taught it to his sons. He also took in other apprentices to work and learn with him. Because of his great skill in making violins, it was considered a privilege to serve an apprenticeship with him. Many boys sought such an honor, but he took only the most promising. He was very exacting with own work and with the work of his apprentices. They often worked long hours on very painstaking work for only their room and board. But when Stradivarius said that one of his apprentices was ready to be considered a master craftsman, no one questioned the ability of that apprentice. The master's reputation was so great that a recommendation by him was accepted by all.

Machinery Enters the Picture: There came a time, however, when men began to invent tools and machinery. The inventions made it possible for unskilled workmen to do and to make many things which before had been achieved only by master craftsmen. Naturally the skilled workers became alarmed. They sometimes smashed the machinery and tools, and drove the unskilled workmen away. They were afraid, of course, that they would lose the prestige or honor attached to their trade, and that they would be forced to work for less money. In fact, these very things were actually taking place.

But the tools and machinery had come to stay. More and more inventions led to more and more tools and machinery, until this period became known as the Industrial Revolution. The word "revolution" is used because within a comparatively few years the way of making things people needed and wanted changed radically enough to be thought of as a "revolution" in methods. The Industrial Revolution is still going on now. For hundreds of years people did things in the same old way--by hand. Now new inventions, new machinery, new methods are the order of the day, and none of us knows when it will stop or where it will lead. We do know, however, that it has led to more goods, more comforts and conveniences, but it has also led to more and more problems in the relation between employers and employees.

The A.F. of L. The first steps towards organizing the American Federation of Labor were taken in 1881. Five years later, in 1886, plans were completed and the A.F. of L. was definitely organized on a setup quite different from that of either the Knights of Labor or the National Labor Union. Membership in the Federation was voluntary on the

part of the national craft unions. This meant, of course, that only skilled workmen were included. The national union organizations still retained most of their power, and only such authority as they permitted was taken over by the Federation. In other words, the national unions were still practically self-governing, and the central federation had only such powers as were specifically delegated to it by its member unions. No attempts at all were made to get unskilled workmen to join. This central organization, the A.F. of L., grew slowly but consistently over a period of many years. In 1920 it had a membership of 5,047,806, the largest at any time until the Franklin Roosevelt administration.

Employers Were Alarmed: During these years of growth, more and more power and authority were given to the Federation by the national craft unions which made up its membership. Its growth was not accomplished without some struggle. Employers, for the most part, were suspicious of union membership. They were afraid to have their workers join an organization which might give the workers enough strength to stand out against arbitrary rules and regulations. During the earlier part of the Industrial Revolution employers had almost complete control over wages, hours of work, and working conditions. In far too many instances this control was exercised primarily for the benefit of the employer with very little consideration given to the workers. Wages were low, working hours were long, and safety measures were too often neglected. Employers, quite naturally and quite correctly, believed that if their workers banded together, they would make demands that would in turn reduce the authority and possibly the profits of the employer. This is, of course, what happened. Union members began talking in terms of a shorter work week, higher wages, and better working conditions. Eventually they insisted upon such things, and used strikes as a means of getting their demands recognized. This in turn led employers to use any means they could find to combat the strikes. In some instances violence took place, both on the part of the strikers and on the part of those hired by the employers to break up the strike.

A good deal of the present bitterness between Management and Labor can be traced back to this period during which negotiation was not the common thing and open hostility existed between the two. Because there have been, and in some cases still are, some hard feelings on both sides on the subject of unions, it is well to be very impersonal as we review the labor movement, being very careful to confine our discussion to the facts as we find them.

During the 1920's and the early 1930's the unions grew steadily, but against considerable opposition from employers and sometimes from the public. Employers used certain tactics to control, or even prevent, union memberships. We shall discuss these tactics because they are important in understanding some of the later laws which put governmental controls on what the employers were permitted to do in connection with union membership.

1935--An Important Year for Labor. In 1935 two important events took place which greatly affected the future of the Labor Movement. The first of these was the passage by Congress of the National Labor Relations Act, also known as the Wagner Act. This Act set forth certain rights of unions, and restrained certain activities of management. At first some employers could not, or would not, believe that the Act would be held constitutional by the Supreme Court. However, in April, 1937, a test case was brought before the Supreme Court. The Court's decision was against the employer. The position of the Court was expressed in part as follows:

> "Experience has abundantly demonstrated that the recognition of the right of employees to self-organization and to have representatives of their own choosing for the purpose of collective bargaining is often an essential condition of industrial peace. Refusal to confer and negotiate has been one of the most prolific causes of strife."

Thus, during the Franklin Roosevelt Administration, labor was given its first protection by an Act of Congress. From that time (1935) until 1947 when the Taft-Hartley Bill was passed, Labor was usually given the benefit of the doubt in most decisions rendered by the National Labor relations Board which was set up under the terms of the Wagner Act. Management cried that it was discriminated against under the Wanger Act; Labor rejoiced that finally something had been done by the Government to protect the rights of the workers. Quite naturally, labor unions grew in numbers and strength during this period.

Two sections of the Wagner Act were of particular importance and deserve a little study. Section 7 states:

> "Employees shall have the right to self-organization, to bargain collectively through representatives of their own choosing, and to engage in concerted activities, for the purpose of collective bargaining or other mutual aid or protection."

Section 8 restrained employers from what were called "unfair labor practices" as outlined below:

> "It shall be an unfair labor practice for an employer to:
>
> 1. Interfere with, restrain, or coerce employees in the exercise of the rights guaranteed in Section 7;
> 2. Dominate or interfere with the formation or administration of any labor organization or contribute financial or other support to it;
> 3. By discrimination in regard to hire or tenure of employment or any term or condition of employment to encourage or discourage membership in any labor organization;
> 4. To discharge or otherwise discriminate against an employee because he has filed charges or given testimony under this Act;
> 5. To refuse to bargain collectively with the representatives of his employees.."

Such organizations as "company unions"--organizations in which both Management and Labor had a voice--were discouraged on the ground that the presence of representatives of Management made it difficult for workers to speak and act freely and without restraint. The use of "spies" to detect union members was made unnecessary since the workers were protected by law in their right to organize.

This protection of the law gave further rise to powerful national unions--for instance, the United Mine Workers under the forceful leadership of John L. Lewis and the United Auto Workers under the leadership, first, of Phillip Murray and later of Walter Reuther. The protection of the National Labor Relations Law (The Wagner Act) also strengthened the two federations of the national unions, the A.F. of L. and the C.I.O. The law did not, however, put an end to Management-Labor strife, although it did tend to put the two parties concerned on a more equal basis in regard to power and influence. The Taft-Hartley Bill has changed some of the provisions of the Wagner Act, and it is as yet too soon to tell just what the over-all result will be.

How a Union Operates

During the years, labor has developed certain techniques of organization and operation in order to maintain membership and obtain the necessary money to carry on its activities. The most common of such methods are as follows:

> The Closed Shop. If an employer agreed to hire only union workers, the shop was called a closed shop. The practice of having a closed shop has been modified

by the recent Taft-Hartley Law.

The Union Shop. If the labor agreement calls for a union shop, the employer may hire non-union workers, but such workers must join the union within a certain stated time, usually one month.

The Maintenance-of-Membership Shop. In such an agreement no statement is made that all workers must be members of the union, but it is agreed that any worker who joins the union must maintain his membership if he is to remain on the job.

The Open Shop. This is a shop in which the employer hires and continues to employ union or non-union members as he pleases.

The Check-Off. An agreement in which the employer collects union dues, deducting it from pay checks, and then turns the money over to the union officials.

Some of these techniques have been abolished or modified by the Taft-Hartley Law, which will be discussed later.

The Collective Bargaining Agreement. This is a written statement which contains the provisions and conditions to which an employer and the representatives of his employees agree. The agreement is in force for a certain length of time and covers such items as rates of pay for specific jobs, plant or office rules and regulations, vacation rates, if any, hours of work, sick leave, safety measures, pensions, lay off and dismissal procedures, and procedures for the handling of grievances.

The agreement resembles a contract, but does not have the force of law that a contract usually has, unless the Taft-Hartley Bill is to be interpreted as giving it such force.

When formulating the agreement, each side tries to get as many concessions as possible, and to give as few as possible. Management, with its tremendous force of capital and the press; and labor, with its powerful threat, the strike, sit across the table from each other in an attempt to reconcile their divergent interests and purposes. In other words, they "negotiate" or bargain with each other. The newer and more enlightened thinking on the subject of the bargaining agreement is to interpret the agreement as a workable plan for cooperation between two parties which are mutually dependent. So interpreted, the bargaining agreement has possibilities as a useful and effective tool leading to improved relations in industry.

This brings to a close the formal discussion of organized labor in this course. We must keep in mind that the large number of workers who are not organized are subject to the same situations and problems also. In many instances the unorganized groups have benefited from the efforts of the organized groups. The question of whether to organize or not is one for the workers themselves to answer. They are now protected by law in the right to organize if they choose.

Management and Labor. Present day management is perfectly frank to admit that early management made serious mistakes in its methods and techniques of dealing with workers; mistakes which are still being paid for today in mistrust and resentment. The comparatively sudden growth of our large mass-production factories presented unfamiliar problems to management in regard to the handling of great numbers of workers. In the desire to attain high production with low unit costs, managers and foremen sacrificed individuality for efficiency. They lost sight of the fact that there are very fundamental differences between men and machinery.

Enlightened management now recognizes most of the errors of the past and sincerely wants to adopt more socially effective and acceptable methods of handling their personnel. However, it is difficult to use power and authority wisely, and to relinquish them gracefully when necessary. The tendency is rather to guard power jealously and to demonstrate authority constantly. It is necessary to remember this when observing the usual reluctance with which Management turns over some of its established prerogatives. The master of a slave took his rights very much for granted, and was sometimes startled to discover that there were people who questioned his rights of possession. The master of a servant expects to receive much in the way of deference and service, and usually for as little pay as the labor market will allow. Management, too, has taken it for granted that the very considerable risks it takes at times and problems it must constantly solve, should be rewarded with the highest possible profits. Because labor costs lower profits, Management came to the rather logical conclusion that labor costs should be kept as low as possible. Since Labor took sharp exception to this conclusion, Management has tended to be suspicious and mistrustful of organized labor; for organized labor has been able to put the balance of power between the two parties on an increasingly more nearly equal basis. Labor has gained strength, prestige, and many of the things it has fought for; so perhaps, it can afford to relax somewhat its belligerent attitude toward Management. In fact, it would seem that Management and Labor must both modify their former ideas and cooperate in attaining their common goals.

The New Outlook. Since 1935, when the Wagner Act was passed, Management has at times found itself in difficult situations. Previous to the passing of this Act, the weight of public opinion and the courts were usually on the side of Management. Suddenly managers found that the workers were protected by law in their right to organize; that an employer could no longer dismiss a man just because he belonged to a union. This was, of course, a restriction on Management's prerogative to hire and fire at will, a restriction which was bitterly resented by some employers. If a given union were strong enough to be able to include a closed shop in the bargaining agreement, another restriction on the right to hire and fire at will entered the picture. The employer could then hire only union members. A closed shop can be an advantage to both employer and employee under some circumstances, and a disadvantage under others. Many employers find it hard to adjust to the idea that they are no longer entirely free to hire and fire working people as they see fit.

The gains made by organized labor have also had a very direct effect on unorganized labor. Management learned that one way to prevent unionization of their shops, plants, or offices, was to keep their employees so well satisfied that they were not interested in joining unions. Hence, working conditions have been improved, employee benefit systems instituted and wages raised in many non-unionized establishments. Management became worker-conscious, with the result that it thought more and more in terms of maintaining good relations with employees, a condition which is working out to the advantage of both.

Another of the difficulties Management has had to face is the fact the union leaders have not always understood or appreciated the problems of Management. The timing of some demands has been such that Management was simply unable to meet the demands and stay in business.

Both Management and Labor have had much to learn about the proper use of their respective powers, and thoughtful leaders on both sides have done much to try to improve the situation. The technique of negotiation is difficult to learn, and the art of handling people effectively takes a long time to acquire. One of the purposes of this short course is to gain a little insight into both of these fields.

The errors of the past have been so costly to Management that a considerable amount of money has been spent to discover the best ways of directing workers and to determine what are the underlying satisfactions and dissatisfactions of employees. The results of such research are of importance not only to large-scale employers, but to all people who supervise even one employee.

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UNIT 1: FAMILIARIZATION

TOPIC: History and Ethics of the Trade

LESSON OBJECTIVES:

Carpentry is an old trade. In the material covered by this lesson, the apprentice will discover some interesting historic facts about carpentry. A short study of the trade's history will also broaden the learner's understanding.

Ethics may be defined as the science of human duty, the basic principles of right action. Every kind of established human endeavor is guided by ethics. You will learn something about carpentry ethics in this lesson.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit I, pp. 145, 146, 151.

IMPORTANT STUDY POINTS:

1. What is a Guild?
2. What is the origin of the word Journeyman?
3. What is the difference between a journeyman and a master?
4. What was the wage of an apprentice under the Guild System?
5. What happened to the Guilds?
6. What historic event which had its beginning in the 19th Century caused a great change in the apprenticeship practices?
7. What date was the United Brotherhood of Carpenters first organized?
8. Peter J. McGuire was best known for the creator of which holiday?
9. What is the main purpose of apprenticeship?
10. A list of desirable traits an employer rightfully expects a carpenter to have.
11. What is the purpose of the related school in the apprenticeship program.

WORK ASSIGNMENTS:

Classroom:

Lab:

Test: Two hour diagnostic on Math.
Pre test on Math.

INTRODUCTION TO NEXT LESSON:

How to get along with your boss, fellow workers, and yourself, and what an employer can expect.

MATERIAL LIST FOR NEXT LESSON:

Pre-Test for Unit 2--Mathematics Review. Use this test to determine which material the apprentice should study in this unit on mathematics.

1. Add: 934.2 and .00314

2. Subtract: .721 from 2.1007

3. Multiply: .004 by 101

4. Divide: .341 by 72

5. Subtract: 11/16 from 1 1/4

6. Multiply: 1 7/8 by 2/3

7. Divide: 3/4 by 1 1/2

8. What per cent is 3 of 4?

9. Ten per cent of a number is 7. What is the number?

10. John's share is 1/4. Bill's share is 3/4. What is the ratio of Bill's share to Johns?

11. Suppose that mortar contained two shovels of lime for every twelve shovels of sand and one shovel of cement. How much lime is needed for sixty shovels of sand?

12. A number times itself equals 169. What is the square of the number?

13. $\sqrt{3.0025}$ to two decimal places.

14. C = 5/9 (F-32) Find C when F = 0°

15. Find F when C = 37.5

16. If 3/4" of rain fell on a piece of land 100 feet long and 48 feet wide, how many cubic feet of water would that be?

17. How many inches are there in one-half mile? In ten yards? In three and one-half feet?

18. A box is 4 feet by 2 feet by 2 feet. What is its volume in cubic inches?

19. A cylinder is 10 feet long and 9 feet in diameter. What is the volume?

20. A rectangle has an area of 48 square feet. One side is 6 feet long. What is the length of the other?

21. A circle has an area of 314.16 square feet. What is its radius?

Name _____ Date _____ Score _____

UNIT 1: FAMILIARIZATION

TOPIC: How to Get Along with Your Boss, Fellow Workers and Yourself; and What an Employer can Expect.

LESSON OBJECTIVES:

The ability to get along with people is often considered as important as the skill one possesses for his job. In this lesson the apprentice will be given an understanding of techniques he should use so he will have good relationship with his boss and fellow workers and have a better understanding of himself.

One of the most difficult problems in personnel relationships is for the employer and the employee to agree on just what "rights" will be recognized and what are the characteristics and attitudes which both employer and employee have a right to expect of each other.

REFERENCES:

Information sheet.

STUDY ASSIGNMENT:

Information sheet.

IMPORTANT STUDY POINTS:

1. Learn what advantages you may receive if you get along with your boss.
2. Acquaint yourself with the reasons for appropriate clothing on a job.
3. Realize the importance of being able to get along with your fellow workers.
4. Learn when to listen.
5. Understand the value of self examination.
6. Pay particular attention to the discussion or being able to accept supervision gracefully.
7. Note why re-training of employees is sometimes necessary.
8. Be able to distinguish between delegated and assumed responsibility.
9. Pay particular attention to the causes and effects of tardiness and absenteeism.
10. Learn why a "right" is always accompanied by duties and responsibilities.
11. Become familiar with the things that should be done during the induction period of a new employee.

WORK ASSIGNMENT:

Classroom:

1. Why is it sometimes harder to give orders than to take them?
2. What do you consider appropriate clothing for your job?
3. What are some important things to remember when you are new on the job?
4. What are some of the main features of good supervision?
5. How can a new or young supervisor avoid trouble with people under his supervision?
6. What advantage is there in being able to get along with your fellow workers?
7. What are some important habits to form that should help you in your association with your fellow workers.
8. Why should we not always blame others when things go wrong?
9. What do you think are the traits of a selfish person?
10. Why do you think a person should be a good follower before he can become a good leader?
11. Explain the difference between being given responsibility and assuming it.
12. What are the chief causes for tardiness and absenteeism, its reason and effect?
13. What should you do when you will be absent from work?
14. Why would you like to have check-up conferences with your supervisor at regular intervals?
15. List employees' rights.

INTRODUCTION TO NEXT LESSON:

Grievances, causes and results.

MATERIAL LIST FOR NEXT LESSON:

UNIT 1: FAMILIARIZATION

TOPIC: How to get along with your boss, your fellow workers, and yourself.

How to Get Along With the Boss:

He IS the Boss. In modern business and industry it is probably quite true that promotion, salary increases, and contentment on the job depend to a very considerable extent on whether or not you can get along with your boss. It is perhaps not an exaggeration to say that the ability to get along with your boss is as important as skill on the job, or possibly more so. Always remember that as long as you work for a person, it is your duty to try to get along with him. While it is true that when two people fail to get along together, the situation usually reflects unfavorably on them both; on the job it is primarily the duty of the employee to adjust himself to his boss.

He IS Human. First of all, remember that your boss is only human. If he is tired or worried he may speak in a sharper way than usual. Be willing to make a few allowances, and don't hold it against the boss if he is only occasionally cross or unreasonable. Try not to carry a chip on your shoulder. All of us are ashamed at times of something we have said or done. It is usually a great relief to find that such things are not held against us too much and that other people are willing to accept us on good terms again. Strange as it may seem, it is sometimes harder to give orders than to take them. Often an abrupt manner is nothing more than a cloak to hide uneasiness of uncertainty.

Look Right. It is inevitable that you will be under rather close scrutiny during the first days and weeks on a new job. It is to your advantage, of course, to make as good an impression as possible on your superior. For one thing, make sure that your clothes are appropriate for the kind of work you are to do. This is important. If you are to meet the public, you should be neatly and conservatively dressed. If your job entails rough or heavy work, do not come to work looking as though you were afraid to soil your hands. If you are in doubt as to how to dress, ask your superior outright or observe how other workers are dressed.

Feel Your Way. It is better not to be critical during your first days on a job. Even if you have had experience in the same kind of work and know how some improvements could be made, go slow in making suggestions. Learn your job and know your boss first. Employers and supervisors are usually proud of their methods and machines; too-outspoken criticism wounds their vanity. If the criticism comes from a new employee, the supervisor is apt to consider that person presumptuous and will tend to dislike him. On the other hand, after pleasant relations have been established between you and your boss, and you have had enough experience on the job to know what you are talking about, your boss will probably welcome tactful suggestions. In fact, a survey of employers has shown that practically all employers want suggestions about the work from their employees, though several of them added that they didn't like to have a new employee "try to make the place over." Perhaps the best advice is to keep in mind that it matters how and when you make your suggestions. And this holds true no matter how long you have been on the job.

Be Attentive. Another way to please your employer is to show a willingness to learn. Be alert when someone is giving you help or instruction. Try never to assume a "know-it-all" attitude. If your supervisor does not give you enough instruction so that you know how to do your work, do not hesitate to ask questions. Intelligent questions show eagerness and willingness to learn. Since many supervisors tend not to give careful

and thorough instruction during the breaking-in period, it is sometimes absolutely necessary to ask for more information than has been given. Questions become a nuisance only when it is evident that the questioner has not paid attention to previous explanations. Such a situation shows a desregard for the value of time. Remember that on a job, a person's time is evaluated in terms of money.

How Would You Feel? If you were to hire someone to work for you and agreed to pay him by the hour, day, or week, you know that you would expect him to earn the money that came out of your pocket. You would most certainly resent any appearance of laziness or indifference on the part of the person you hired. Realizing this, you can surely understand that your employer will also resent any appearance of laziness on your part. To him you are a financial investment from which he expects an adequate return. Your employer will also resent a misuse of the time for which he is paying you.

Excessive talking during working hours, prolonged rest periods, and obvious slowness in performing duties are all practices which will impair pleasant relations with your boss. If it is your desire to please your supervisor, you will avoid causing annoyance in any of these ways. While it is often true that a supervisor will not come right out and tell an employee that such habits are an annoyance, you may be sure that he takes note of them, nevertheless, and that they often play an important part in causing hard feelings, lack of promotion, or even dismissal. If you will stop to think that you yourself would no doubt react the same way, you will not resent the fact that your boss is displeased at evidences of laziness and indifference.

Try to Please. Since it is not only your duty, but also good policy, to get along with your boss as well as possible, it pays to find out, in general, what your superior likes and dislikes. It has been said that getting along with a superior is in itself an art. If you know that he feels strongly on certain questions, it is nothing short of foolish to rub him the wrong way by outspoken criticism of his ideas and methods. If you cannot in all honesty agree with him, you can at least maintain a discreet silence. If you know of certain things your superior particularly likes, there is no real harm, and perhaps much good, in giving these likes due respect. "Apple Polishing" is rather easily detected and usually resented, but most of us appreciate a little deference to our pet hobbies and ideas.

It usually pays to develop a certain sensitivity to the moods of your superior. When he feels like talking, listen; and when he obviously does not want to talk, do not force a conversation. When he seems moody, let him alone. When he is "bossy" tend strictly to business. While it is possible to overdo "yessing the boss," it is still a good idea to try to adapt yourself to his moods so that you will both feel "comfortable" together. Practically everyone who works for a living has a superior whom it is much to his advantage to please. The superior whom you feel you must please also has a superior whom he must please, and so it goes up the lines of authority. There is almost always someone in the picture who has the authority to praise or blame us, promote or discipline us, make life pleasant or very unpleasant for us. And to a very considerable degree it is up to us as to whether we will be treated pleasantly or otherwise by those who outrank us in authority on the job.

The Young Supervisor. One of the common causes for friction between supervisor and employee is a reluctance or failure on the part of the employee to recognize lines of authority on the job. For instance, it is often hard for an older employee to accept direction and authority from a younger person who outranks him. The explanation for such a feeling is probably that all during childhood we are taught that older people must be respected and obeyed. This training carries over into our adult life to the extent that we have an inner feeling that something is wrong, or that we have failed in some way, when we find that a younger person has been given authority over us. As a matter of fact, the situation is also difficult for the younger person. He may also

have a carry-over from his childhood training regarding older people which makes it hard for him to give orders to a person older than he. In many instances, this is the underlying reason why older people are not hired for certain jobs. Probably the best solution is for the older person to make an extra effort to let the younger superior know that the lines of authority are clearly recognized and accepted without resentment; and for the young superior to be considerate in the way he gives his orders to an older person. There is no need for either party to exaggerate an already somewhat ticklish situation.

The New Supervisor. Another difficult situation arises when an employee is promoted above those with whom he has recently been working as an equal. If one of your associates becomes your superior, you will do well to make an extra effort not to show resentment or jealousy and, if possible, not even to feel such emotions. Even though the situation may be a real disappointment to you, you stand to lose in every respect if you fail to accept the facts. The situation is likely to be hard for the person who is promoted as well. It is not easy to give orders to people who have recently been on the same level of authority. Again, the best solution seems to be consideration on the part of the superior and acceptance on the part of the other employees. Had you been the person promoted, you would not want your erstwhile fellow workers to work against you in your new job.

Know the Signs. Perhaps one of the most difficult things for a new, inexperienced worker to grasp when he first goes to work is the subtle, but none the less real, "caste" system in business and industry. Such indications of "standing" in the organization as the biggest and best desk, a private telephone, a white shirt, the best machine, the longest seniority, the wearing of a badge, closeness to the boss, all have significant meaning in terms of lines of authority. Failure to observe and understand these "signs of standing" often leads to blunders on the part of new employees in their contacts with other workers and superiors. This is one reason why it is good policy to be careful in speech and action when new on a job. Keep your eyes open until you sense the relative importance of the people with whom you work. If necessary, ask to whom you are directly responsible. Your own "social" standing in the plant or office will depend to a considerable degree on the position which you hold. Your contacts with others, and particularly with your superiors, will be pleasanter if you recognize and accept this fact. It is not good policy to assume familiarity with a person whose "standing" is higher than yours. Of course, each of us has to figure out the relations that work out best with our boss. Generally, however, it is better to be friendly without being familiar. If the relationship gets on too familiar a footing, it becomes harder to give and take orders. By and large, it works out best over the longest period of time if the whole matter is kept a little on the impersonal side.

Like Your Boss and He Will Like You: The era of "rugged individualism" is now a thing of the past. The problem thus becomes one of knowing and accepting our "relatedness" in the picture of life in general, and our work situation in particular. The relationship between you and your boss is the most important personal relation in your occupational life. Good relations between you are essential from every point of view. Your boss has a responsibility in the matter too, but an employee has more to lose if things go wrong. Since we tend to like people who seem to like us, it pays to show your boss that you like him.

How to Get Along With Fellow Workers: One of the most important and most appreciated traits in a worker is the ability to get along peacefully with all kinds of people. It is especially important that we learn to get along well with our fellow workers; after all, we spend most of our waking hours in their company. As the cogs in gears must mesh together without friction, so must each worker fit into his place in an organization without friction between himself and others. This does not mean that people are mere "cogs" but it does mean that on-the-job performance can be ruined be personalities which clash. We cannot all be individualists in a work situation; we must learn to work in and as a group. When machinery begins to get hot and show signs of friction,

we pour on cooling fluids, grease, or other lubricants. Sometimes we must let the machinery cool off for a while. When friction develops between people, our best (and perhaps only) lubricants are consideration, tact, understanding and fairness. Sometimes people need a "cooling off" period, too, before further action can be attempted.

It is probably true that most people want to get along well with others, but that many of us do not know how. Here are a few questions to ask yourself.

1. Are you willing to help the other fellow? Being helpful to others pays dividends in several ways. It leads to personal satisfaction for the person who is helpful. It is a good investment for the future, since helpful deeds have a way of returning when there is need. It paves the way for friendship. This is especially true of the help given to a new employee who may be going through a period of uncertainty and bewilderment as he adjusts to his new job. In fact, being helpful and giving good service are policies upon which the success of many large businesses has been developed. So if you can't be helpful just because of an inner urge to do the right thing, then put the matter on a dollar and cents basis and be helpful anyway.

2. Are you willing to go half way to be friendly? If you can learn to think friendly thoughts and do friendly acts, you will, in time feel genuinely friendly. Then your life will be more pleasant and so will the lives of those with whom you work. It is difficult to think that a person is a friend unless he acts friendly. Even though "standoffish" people usually have inner feelings of inferiority, the impression they give others is that of being offensively superior, or openly rude. Often they do not know themselves why they act the way they do. They need help in learning how to relax and meet others with a smile. Perhaps knowing this will help you to understand apparently unfriendly people a little better.

3. Do you show annoyance on slight provocation? It is not pleasant to work with a nervous person, who, every time something goes wrong, shows annoyance either by an impatient gesture or word. It is impossible to relax near such a person, because nervousness is, in a way, contagious. Your nervousness can make someone else nervous. Nervousness is a reflection of a state of mind; it is an indication that the individual's mind is not, at that moment at least, calm and assured. Sometimes worries and extra burdens at home, or in one's personal life, cause one to be cross and irritable at work. We all need to learn to accept responsibilities. How do you accept them? Do they worry you, or make you nervous? We are not being good teamworkers if we pass our nervousness on to others.

   Are you afraid, perhaps, of making mistakes? Mistakes, in spite of our best, will happen. Handle your mistake situations bravely, honestly, and graciously. There are only three things that can be done about a mistake. First, correct the mistake and, if possible, undo any damage done; second, try to prevent a recurrence of the mistake; third, try not to cause emotional upheavals because of your mistakes.

   Some office managers and foremen have been known to make such a fuss of a comparatively minor error that the efficiency of the group was impaired because of the emotions aroused. The one making the mistake usually feels bad enough about it without having others become concerned. If one of your co-workers is doing something the wrong way, give him friendly, patient help in a courteous way. When working with others, the way you do a thing is sometimes more important that what you do. Do not dwell upon mistakes made by others. Show consideration. You may be the next one to make a mistake.

4. Do you try to be fair? One of the best ways to get yourself disliked is to take advantage of authority you may have over others, or of circumstances that are favorable to you but not to others. Nothing breeds resentment, and even hatred, more than having to take humiliation, unjust criticism, or discipline at the hands of a petty

tyrant. If it is your job to supervise others, remember that cooperation won is far more powerful and lasting than obedience demanded. Some very good supervisors follow the policy of never asking anyone under them to do something they would not be willing to do themselves.

5. Do you bear grudges? Most of us have our feelings hurt occasionally, and must decide what to do about it. Probably the worst thing to do is to nurse the hurt or slight in our thoughts until it assumes more importance than it merits. That is what "bearing a grudge" means.

   There is not much chance that all of us will agree with everyone all of the time. Differences of opinion are inevitable. When another person defends his own point of view, try not to dislike him just because he does not think as you do. When a fellow worker offends or annoys you, think carefully before you make an issue of the event. Sometimes it is better to ignore what happened. Sometimes it is better to talk the matter out right away, and then forget about it. If you dwell on an incident, you may eventually think in terms of "getting even" with the other person. To be unforgiving, to bear a grudge, to carry a chip on your shoulder, or to harbor a desire to get even may twist you up emotionally and get you into hot water socially. Grudges have a way of boomeranging on the person who harbors them. They make your thoughts sour and your outlook on life gloomy. It is not worth it.

6. Are you willing to give the other fellow the benefit of the doubt, if you suspect his motives? It is an unkind thing to be suspicious of other people. In fact, the person who is always cagey and suspicious is very likely to have motives of his own which might not look too well in a strong light; that is why he is suspicious of others. It is better to have your confidence in people betrayed a few times than to live in a world of suspicion and mistrust.

7. Do you try to talk more about the good than the bad qualities of others? It is very easy to get in the habit of always mentioning the wrong things others do, the wrong things they say, or the queer way they look. It is just as easy to learn to think and talk in a positive way about the good traits of others. We all know how much it hurts to overhear someone criticizing us, especially if they are talking about something we cannot help. We know that we never really forgive the person who has made these unkind remarks, and that from then on our relations with that particular person are strained and unhappy. We all know, too, how good it is to overhear something nice being said about us. The inner satisfaction we get from praise actually helps us to try even harder to do well, whereas too much or unkind criticism can kill ambition.

   Since we know so well our own reactions to praise and blame, we should let this knowledge guide us in the way we treat our fellow workers. Look for and talk about good qualities. Remember that what starts out sometimes as only an innocent rumor can end up ugly and harmful. It is better to talk too little than too much. Your fellow workers will have more confidence in you and like you better if they know you are not one who is forever looking for faults. If you have any doubt about this, try being thoughtful and considerate of others in all you say. Your thoughts will be happier, other people's feelings will not be hurt, friendships will be stronger, and each day's work will go more smoothly. Think it over.

8. Do you think only of your own interests? Is it not boring to listen to one who talks always of his own problems and interests? Are you interested in what others have to say? Tact has been defined as "knowing what to say at the right time in the proper way." We might add that it is also knowing when to listen.

Some people pride themselves on being frank and blunt. Those who do are often rude and sometimes crude. There is no particular virtue in sacrificing other people's feelings on the altar of frankness. People who trample rough-shod over the feelings of others are not likely to have many friends.

True unselfishness is to be admired and respected. Then why are we so often reluctant to give deserved praise? If you want to get along well with your fellow workers, never take credit for work or ideas which are not yours. Some supervisors accept praise from their superiors for ideas which originated from workers under them. In the long run, it pays to give credit where credit is due. It also pays to be as considerate of the interests of others as you expect them to be of your interests.

9. Do you take yourself or your work too seriously? It is not desirable to take your work or yourself so seriously that you forget how to laugh. After all, all of us who work are merely links in a chain, so we do not need to feel that we carry all the responsibility. While we should be careful to see to it that we earn the money we receive, there is no need to make life so grim that there is no room for fun. Officious people are usually not well liked--they take themselves too seriously. We should always be willing to assume full responsibility for doing our work well; on the other hand, we must not assume responsibility that belongs to someone else.

10. How much do you value your integrity? The person you are never going to get away from is the person you look at in the mirror each morning. If you can look him in the face with no uneasy feelings, the chances are that you will have no trouble at all in looking anyone else in the face. This self-assurance will lead to inner confidence and outward poise. No one but you can take away your self-respect.

Integrity has been defined as "upright Character." Here are some of the characteristics of a person of integrity:

a. He is honest in his dealings with others;
b. He keeps his word, or makes an explanation when he cannot;
c. He does not stoop to mean acts;
d. He is not easily led by others, he has a mind of his own and knows how to make it up;
e. He is not afraid as long as he feels he is in the right;
f. He is respectful and even reverent when the occasion demands;
g. He is courteous and considerate of others.

Never forget that a person can be rich in integrity whatever his station in life may be.

How to Get Along With One's Self.

Look Within. One writer has said, "The proper study of mankind is man." Another writer has put it this way, "Know thyself." What these writers mean is this: If we have a little understanding of our own motives, and the way in which our past experiences have influenced our present thinking and behavior, we are in a better position to guide and control ourselves in mapping out the best course ahead of us. We should not always blame others when things go wrong; sometimes we must look within before we find the trouble.

Home Life

Are you timid? Do you hate to take responsibility? If, at your present stage of growth, you think you are too timid, or find it difficult to take responsibility, it may help to think back over your earlier years. Was mother or father always willing to do things for you? Were they too quick, perhaps, to shield you from anything that might hurt you,

or anything that might prove hard for you? Of course, mothers and fathers mean well, but they sometimes overdo their protection. They sometimes fail to understand that children must be allowed to grow up by learning the hard way. If you have reason to think you were overprotected or overindulged at home, pull yourself up mentally and stop expecting other people to do your work for you or to cover up your mistakes. You can develop strength of character by refusing to accept help from others. Listen to advice from those who should know, then learn from your own mistakes. Accept the responsibilities which come your way as a challenge to your abilities, not as something to shy away from.

Are you bossy? Do you always want your own way? If you believe you have a tendency to be bossy, just stop to think. Do you like to be bossed around? Do you like a person who always wants you to give in to him? Perhaps you are doing to others what you found it pretty hard to take yourself as a child. Maybe you were bossed a little too much, so now you think the proper thing to do is to pass this on to other people. This, by the way, is a common tendency.

If we are forced to take correction or humiliation to such a degree that we become inwardly very resentful, but cannot or dare not express this resentment to the person who causes it, our tendency is to pass the correction or humiliation on to someone who must take it from us. Thus, the secretary who gets a calling down from her boss comes into the outer office and upsets everyone by her unpleasant manner. Or the husband who has had a trying day at the store or plant comes home and snaps at his family. A mother who has become tired and nervous scolds her children. The child who has been continually nagged, teased, or punished may grow up into a tyrant in his own right. If such a pattern of behavior has been established, the person himself should try to break and change it. He should learn to restrain himself when the impulse comes to be bossy, unpleasant, or downright mean and to substitute for such behavior, perhaps with great effort at first, a willingness to try to win cooperation from other people and to obtain their good will. It might take quite a long time to do this, but once done, that person's whole life will be happier and his relations with himself and others will be much more pleasant.

School Life

How have you gotten along with your teachers? Next to your home and your parents, your teachers and fellow students have had the most influence on your thoughts and actions. How have you gotten along with them? Do you feel that most of your teachers are your friends? Have you been on good terms with most of your fellow students? If not, perhaps you should look within. Have you been friendly? Have you tried to please your teachers? Teachers cannot deal with you entirely as an individual; you are part of a group. This means that you must accept your role in the group without demanding special attention and special favors.

What have grades meant to you? Grades tell you how you compare with others in your group. They are not a punishment--they are a comparison. It can be discouraging to receive a low grade. Naturally, we all hope others will think we do very well. However, we must not overestimate our abilities. The best way to think of grades is that they are a challenge. If a grade is low, try to raise it. If a student is sullen or resentful, the teacher may come to the conclusion that he does not want to try any harder. Sometimes we find that we cannot make a good grade in some certain subject, no matter how hard we try. This can make us very unhappy, but there is nothing to do but accept the fact that in that particular subject we cannot rank among the best. If such is the case, we must try to accept the situation without letting it hurt us inwardly. Very few people can excel in everything. The primary purpose of some of the courses in school is to help students find what they can do best and enjoy most.

On the Job

Are you a willing worker? No employer likes to have an employee give the impression that he resents the work he is asked to do. This is especially true in the case of young inexperienced workers. Employers want to feel that you are there because you really want the job, and that you stand ready and willing to do what you are asked to do. If someone wants your help in completing a certain job, be willing and act willing to give that help.

Because of faulty thinking and careless training, too many of our workers nowadays seem to think that work is something to be endured if necessary and avoided when possible. This is nonsense. Are you really happy when you have nothing to do? How is a person to justify his existence if he does nothing to help others? No person is really happy who thinks only of himself and does only those things which benefit him. Such a person is selfish, and a selfish person has the hardest time of all trying to get along with himself.

Can you accept supervision gracefully? The business world is so set up that almost everyone has a supervisor whose duty it is to assign and direct his work. If this fact makes us inwardly resentful and uncomfortable, then again we are not getting along with ourselves very well. If such is the case, we will not get along with our superiors very well either. Even if you cannot respect your supervisor as a person, you should respect his ability and his position. A beginning worker cannot expect to be a leader, but he can learn to be a good follower. Someone must give the orders; others must carry out the orders. Whichever role comes your way, accept it without mental resistance and inner resentment. If you become a supervisor, would you want your workers to dislike and resent you? Of course you would not. Then learn now how to take orders, and incidentally how to give them. For instance, "Will you please do this?" is better, is it not, than "Please do this," or "Do this"?

Do you make friends easily? Some people are constantly bothered by a feeling that others do not like them, will not be friends with them, or just won't be nice to them. Such feelings may be due to the fact that such people have never felt really secure in their own homes; hence they are unable to feel secure anywhere else. It helps in such instances for the person who feels neglected to start a campaign of doing things for others in a friendly way. The chances are that in time others will respond to these offers of friendship and in return give the friendship that is so much desired and needed. The person who complains that other people are not friendly is usually admitting (without knowing it) that he is not very friendly himself. After all, we cannot demand friendship; we can only deserve it.

Can you depend on yourself? Quitting can become a habit. We can usually think of many good reasons why we should stop doing anything that requires extra work, extra study, or hard thinking. We can fool ourselves by coming to the conclusion that we are not fitted for the job anyway, or that we do not have time to do so much. We can even hide behind social activities to such an extent that it interferes with things we know we should do. Or we can spend so much time listening to the radio that we just can't find the time to get our work done. Our conscience usually gives us an occasional prick if we dodge our duties, but we may form the habit of quickly thinking of some excuse that will for a time fool us, and sometimes others. If we are guilty of evading our responsibilities repeatedly, we know, deep within, that we cannot depend upon ourselves. This uneasy feeling makes it harder for us to get along with ourselves. The remedy is a program of self-dicipline to strengthen our will power.

Can others depend on you? After you have decided whether or not you can depend on yourself, it is then time to ask whether others can depend on you. Do you keep your word? Do you keep appointments on time? If you say you will do a thing, are you

careful to follow through? Employers like to know that they can depend on their employees to accept responsibility, to be on time, and to be strictly honest. People will know that they can depend on you only if you take the trouble to prove to them that you are dependable in little things as well as in big things. No employer will assign a position of trust to an employee who has not proved that he is dependable.

Are you growing up emotionally? Most people are mature physically by the time they are eighteen. However, a person may be full-grown physically yet almost childish emotionally. This is because our emotions do not mature just by the passing of time. We have to educate our emotions in order for them to become mature. Without such training, an adult may, and too often does, respond to unpleasant situations with the emotional responses of a child--pouting, outbursts of anger, vindictive thoughts and actions, or fits of crying. Such responses got them what they wanted when they were children, so they keep right on using them in adult life, even though such actions are ruinous in maintaining good relations with others. These people are too immature emotionally to realize that such actions will no longer lead to the desired results. They have not educated themselves to substitute tolerance and understanding for prejudice and emotion, and self-discipline and self-control for childish expressions of anger, fear, or anxiety.

Our psychologists have discovered that we all have certain emotional needs which we should try to satisfy. We all need a reasonable chance to express ourselves in a way that is satisfactory to us and to others. This can be through work, hobbies, sports, music, dramatics, painting, or any other acceptable form of self-expression. We need such an outlet for our emotions and inner thoughts in order to counteract the result of the many times when we must repress them, and act in accordance with rules and regulations. We all need approval and recognition from other people. But if we want the approval of others, we must act in such a way that others can and will approve of us. If we want others to think our conduct is good, we must respect the rules that most people accept. A person is expecting the impossible if he is cross and yet thinks his co-workers should like him. The resulting failure to get along well with his fellows makes it still harder for such a person to get along with himself. He may shout that he doesn't care what other people think of him, but in his heart he knows that this is not true. Any such attempt to fool one's self inevitably leads to an inner conflict of emotions, or to a failure to get along with one's self.

We all need a reasonable amount of security in our lives--security in connection with our jobs and security in our relations with our friends and family. Thus a job which offers a retirement plan, insurance, or protection from layoffs is more satisfactory than a temporary or unstable job even though the latter may pay more. We want to be able to count on our friends and relatives to stand by us in bad times as well as in good times. It follows, of course, that we must be willing to do the same for them, even if it means that we must prove our faithfulness first.

We have covered only a few of the things a person can do to "get along with himself" a little better. The things we have discussed are very personal matters which each of us must work out for himself, but getting along with one's self is, of course, a very personal matter. The reason for putting such a discussion in a course of this nature is that if we can learn to be inwardly at peace with ourselves, we are far more likely to be at peace with others. And this certainly affects the way we do our work. Perhaps this little discussion will help you to understand yourself somewhat better. Our emotions are the most powerful force in our lives. If we could mature emotionally all through our lives, then we would become increasingly more tolerant of others, increasingly more willing to assume life's responsibilities without bitterness or complaint, and increasingly on better terms with ourselves and others.

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UNIT 1: FAMILIARIZATION

TOPIC: What an employer and an employee can expect

What an employer has a right to expect from an employee:

We have already talked about the relationship between rights and duties. From the employee's point of view, his rights become the duties of the employer. From the employer's point of view, the things he feels he has a right to expect from his employees become their duties. One of the hardest problems in personnel management is for the employer and employee to agree as to just what rights will be recognized and just what duties will be accepted on both sides. In this unit we are going to discuss some of the characteristics and attitudes which most employers think they have a right to expect on the part of their employees.

Attitudes and Characteristics:

Honesty. It is surprising that some people think that "just taking a little" is not being dishonest. They will nonchalantly walk off with a towel from a hotel, a piece of silverware from a restaurant, an "extra" bar of soap which has been left in an unguarded place, with never a thought, apparently, that this is stealing. Nothing brings quicker dismissal or surer disgrace for an employee than dishonesty in handling money, or other people's personal property. Anything and everything which belongs to an employer must be strictly accounted for. One must never yield to the temptation to take a nickel from the cash drawer, a candy bar from the counter, or a small tool from the box.

Honesty means more, however, than just not taking things which do not belong to one. It means giving a fair day's work for a fair day's pay; it means carrying out one's side of the bargain; it means that one's words convey true meanings and actual happenings. Out thoughts as well as our actions should be honest. An employer will do much to keep an employee who is strictly honest.

Loyalty. We have already said that loyalty means being "for" a person and that it is a two-way proposition. Employers feel that they too have a right to expect their employees to be "for" them--to keep their interests in mind, to speak well of them to others, to keep any minor troubles strictly within the crew or job, and to keep absolutely confidential matters that pertain to the business. In other words, employers are very likely to think that employees should not "bite the hand that feeds them." Perhaps both employers and employees should keep in mind that loyalty is not something to be demanded; it is rather something to be deserved.

Willingness to Learn. Every office and plant has its own way of doing things. Employers expect their employees to be willing to learn these ways. It may be, for example, that the ways things are done in an actual work situation are quite different from what has been taught in school. Stenographers will find that office procedures vary in different offices. It is necessary to accept these procedures, and to be willing to learn them as quickly as possible. Sometimes the installation of a new machine and new tools makes it necessary for even experienced employees to learn new methods and operations. It is often the case that employees resent having to accept improvements because of the re-training that is involved. However, the employer will no doubt think he has a right to expect his employees to be willing to put forth the necessary effort. Methods must be kept up to date in order to meet competition and at the same time to show a profit. It is this profit that interests the owner in continuing in business and which provides jobs for his employees. Keeping up-to-date means profits to the employer, and profits mean jobs for workers.

Willingness to take responsibility. Most employers expect their employees to see what needs to be done, then go ahead and do it. It is very tiresome to have to ask again and again that a certain job be done. It is obvious that having been asked once, an employee should assume the responsibility of doing the job from then on.

Ability to get along with people. This is perhaps the most highly-prized of all the desirable employee traits. To some, the ability to get along well with people seems to come as a gift; to others it comes only as a result of painstaking thought and training. In order to acquire this ability, one must learn to think of people as individuals, to be able at times to put one's self in another person's place, and to want sincerely to get along with others. Once acquired, the ability to get along with people pays big dividends in friendships, popularity, and profits. Employers are ever appreciative of the employee who is "easy to get along with."

Willingness to cooperate. "Cooperate" means "work together." In our modern business world, cooperation is the keynote to getting things done. It is impossible to "live alone and like it" in an office, store, or plant. We need more close harmony and fewer prima donna solos in our work situations. Learn to work as a member of a team with employer, supervisors, and fellow workers in a common effort to get the work done pleasantly and on time.

Rules and Regulations. Not even two people can work together well unless there is some understanding as to what work shall be done, when it shall be done, and who shall do it. Rules and regulations are a necessity in any work situation, and should be so considered by all employees.

Tardiness and Absenteeism. Tardiness means being late to work, and absenteeism means being off the job for one reason or another. Both are poor work habits and lead to reduced production.

We are all of us creatures of habit. What we do once we tend to do again unless the results are too unpleasant. The habit of always being late may begin back in our early school days when we found it hard to get up when we were called. This habit can get us into trouble at school, and it can go right on getting us into trouble when we are through school and go to work. For whether we like it or not, our business and industrial life is governed by the clock. You are supposed to be at work at a definite time. So is everyone else. Failure to get to work on time results in confusion, lost time, resentment on the part of those who do come on time, and in addition may lead to a reprimand or even a dismissal. Although it may be true that a few minutes out of a day are not too important, we must remember that a principle is involved. Our obligation is to be at work at the time indicated. We agree to the terms of work when we accept the job. Perhaps it will help us to see things more clearly if we try to look at the matter from the point of view of the boss. He can't keep track of people if they come in any time they please. It is not fair to others to ignore tardiness. Failure to be on time may hold up the work of fellow workers. In fact, it usually does just that. A little better planning of our morning routine will often keep us from being delayed until the last bus and so prevent a breathless arrival some five to twenty minutes late. If you were paying someone to work for you, you would probably want him to get there right on the dot. The habit of being late is another one of those things which stand in the way of promotion.

It is sometimes necessary to take time off from work. No one should be expected to work when he is sick, or when there is serious trouble at home which demands attention. However, it is possible to get into the habit of letting unimportant unnecessary matters keep us from the job. This results in lost production and hardship on those who try to carry on the work with less help. Again there is a principle involved. The person who hires us has a right to expect us to be on the job unless there is some very good reason for staying away. Certainly we should not let some trivial reason keep us home. We

should not stay up nights until we are too tired to go to work the next day. If we are ill, we should use the time at home to do all we can to recover quickly. This is, after all, no more than most of us would expect of a person we had hired to work for us, and on whom we depended to do a certain job.

This brings up another matter about which employers have complained rather bitterly at times. If you do find it necessary to stay home, then at least phone so that the boss will know that he cannot count on your being there that day. Time and again employees have remained home without sending any word whatever to the employer. This is about the worst possible way to handle the matter. It leaves those at work in uncertainty as to what to expect. They have no way of knowing whether you have merely been held up and will be in later, or whether immediate steps should be taken to assign your work to someone else. Courtesy alone demands that you let the boss know if you cannot come to work.

Tardiness and absenteeism have resulted in so much lost time and reduced production that management has made careful studies of the factors involved. From such studies it has been found that the most important causes of tardiness are fatigue, transportation difficulties, absence of recreational facilities, and weather conditions. Tardiness is more marked on workdays which follow holidays and on Monday mornings. This last statement shows us that even a very brief interruption in our habits makes it harder for us to get back into the usual pattern. Apparently just one day off the job results in increased tardiness the following day. Probably the best way to deal with this problem is for each worker to check himself to see that he is not among those who find it so hard to get back in the groove of getting to work in time. It should be a matter of personal pride to have the reputation of always being on time.

The study just mentioned also disclosed that the most frequent causes of absenteeism are illness or death in the family, accidents, business situations affecting a worker's family, and dissatisfaction with the job. Here we see that some of the causes are legitimate and unavoidable, while others could be controlled to a considerable extent. One can usually plan to carry on most personal business affairs after working hours. It is not always absolutely necessary to stay home because Aunt Susie's third cousin is ill. Too frequent absences will reflect unfavorably on a worker when promotions are being considered. The fact that dissatisfaction with the job leads to absenteeism is worth mentioning. It is just one more piece of evidence that if we do not like our jobs, we will not do them well. Therefore, it follows that if such is the case we should either change our jobs or our attitudes.

One other fact was brought out by the study. The largest proportion of tardiness and absenteeism is caused by a comparatively small proportion of all employees. This means that those workers who are late for work often and absent on the slightest provocation are really a small part of the total working force. But because they are late or absent repeatedly, they do more than all the others put together to make the average rate of tardiness and absenteeism as high as it is. The majority of workers are seldom late or absent and then only with good reason. Naturally such employees are those who are considered reliable and dependable by their employers.

Employers sometimes resort to docking, demotion, and even dismissal in an effort to control tardiness and absenteeism. No employer likes to impose restrictions of this kind. However, in fairness to those workers who do come on time and who do not stay off the job, an employer is sometimes forced to give a little discipline to those who will not follow the rules.

<u>What an employee has a right to expect from an employer</u>.

What is a "Right"? Even a judge has trouble at times trying to answer this question,

so perhaps we should take a careful look at it. What do we mean when we say we have a "right" to something? We mean, do we not, that we have reasonable expectation of having other people act a certain way toward us, grant certain things to us, or let us do certain things as we please. But, of course, we must accept the responsibility that goes along with whatever is involved, and we must grant others as much freedom of action as we seek for ourselves. Thus, it follows that we cannot discuss our "rights" except against a background of the duties and responsibilities that such rights carry with them.

When we talk about what an employee has a "right" to expect from an employer, we imply that our claim to anything we assert as a right is valid only so long as we perform the duties and accept the responsibilities that each right carries with it. We must also remember that there is no one answer to what is right, or even to what is a right. There are varying degrees of being right; and often the time, place, and circumstances have much to do with what one may expect as a right. In this discussion of what employees may reasonably expect from an employer, we will talk about some of the practices which our modern personnel managers have said are right and proper, and which a large number of our big concerns have accepted as employee rights. We must keep in mind, however, that it is not always possible for every employer to follow the lead of the larger firms in all details, and that often the small employer is forced to modify some of the ideas of big business. Nevertheless, all employers would do well to give careful consideration to the things which we shall mention as employee rights. All employees should perform their duties and discharge their responsibilities in such a manner that they need never feel that the "rights" mentioned are too much to expect.

The new employee and his job. Most of us have to "break in" on a new job. This breaking-in period begins the moment a new employee is officially hired and lasts until the employee is thoroughly trained on his job. While we all know that the "green" employee is confused and bewildered at first, and that the highest rate of personnel turnover takes place among new employees, we have not thought too carefully about the reasons why these things are so. We have not realized as much as we should that the first few days or weeks on a job are crucial for a new employee, and that lasting attitudes and feelings toward the employer, the firm, and fellow workers are built up during this time. If the breaking-in period is well handled, the new person usually becomes a valuable employee; if it is poorly handled, he may become very dissatisfied and possibly quit. Here are some some things which should be done during an induction or breaking-in period.

1. He should be told the rules: The new employee should have all rules and regulations which will affect him carefully explained. The employment office or the foreman in charge should assume this responsibility, not only telling what the rules are but explaining them and answering any questions pertaining to them which the new employee may want to ask. No employee should ever be put in the embarrasing position of having broken a company rule because he has never heard of it. An employee should, if necessary, ask that the rules be made known.

2. He should meet his fellow workers: A new employee should not be permitted to feel that he is on the "fringe" of his work group. We all know how lonely and insecure we feel when a group fails to take us in. The immediate superior starts by introducing the new employee to his fellow workers; they in turn should extend a hand of welcome. While it always requires a little time for a new person to feel at ease in a strange group, the attitude of the group, and especially that of the supervisor, can do much to make him feel comfortable. The new employee needs to be made feel that he belongs to the group and to the firm.

3. He should be taught how to do his work: Somebody--an older employee or the supervisor himself--should definitely be responsible for showing the new employee his job. It is not fair to think that he is a mind reader, or that even previous ex-

perience will see him through the early days of a new job. The new employee needs to be told what to do, shown how to do it, and told why it must be done. The instruction should not be hurriedly or impatiently given, because no one can learn well under such conditions. The new employee should feel free to ask questions. Everyone concerned ought to realize that an adequate breaking-in period requires time and patience. It is true that the speed with which a person "catches on" to a new job is an indication of his ability to learn; however, this does not give one the right to assume that all new employees should be able to learn in a few hours, or even days, what it has doubtless taken supervisors months or years to learn. Any supervisor with such a tendency needs to be re-educated for this job.

Furthermore, the new employee has a right to expect that he will be shown his duties more than once, if necessary. In fact, the supervisor should come back to him several times to explain the work and to answer questions. This is a part of good training on the job, and is known as "following up" the first instruction.

4. An employee should be told about changes that will affect him: It is not too much to expect that employees should be told in advance of changes in hours, duties, rates of pay, times for vacations, or any other matters that will affect them. We all know that we like to plan our time so that we can anticipate our pleasures. Nobody likes to feel that he never knows what will happen next. Employees feel more secure and contented when they know that their interests, hopes, and plans will be kept in mind by the boss. It is a good idea for the boss to talk things over with his employees every once in a while. It is especially helpful to be told the facts straight from someone who knows, instead of having to worry about rumors. Not knowing the facts leads to anxiety and uncertainty. None of us likes to feel that we are being "pushed around." Of course, employees should realize that changes must take place at times, and be willing to cooperate without resentment, particularly when the boss is fair and open about what needs to be done.

An employee has a right to expect honesty and loyalty from his employer. An employer knows that he must be honest in his dealings with customers and other firms if he is to be respected. He must also be honest with his own employees if he is to keep their respect. This is especially true in such matters as rates of pay, hours of work, amount of work expected, and reasons for rules and disciplinary measures. Rates of pay should be carefully explained and consistently followed. The amount of work the employer expects should be made known and fairly divided among employees. Employees should not be left in doubt as to what is expected of them, nor be given any real reason to think someone is "trying to put something over on them." The penalties for being late, disregarding safety rules, smoking at the wrong time or in the wrong places, and for disobeying orders, should be fairly given after all the facts are known. In turn, an employee should be willing to accept (without becoming angry) a penalty that he deserves, but he has a right to know why he deserves it.

Employees like to feel that their boss is "for" them. This is what loyalty really means. It does not mean that poor work will be accepted, or that mistakes will be overlooked. It means that in spite of occasional differences of opinion, people are "for" each other--that they are willing to meet each other halfway in an effort to get things done, and that underneath any surface difficulties there is a feeling of confidence and respect. Loyalty is a two-way path on which employer and employee should meet.

An employee has a right to be treated as an individual. More and more employers are realizing that employees on the job cannot completely separate themselves from their homes and personal lives. While happenings outside the work situation should be kept in the background as much as possible (and especially not talked about too much on the job), such things as sickness, death, family troubles, and financial worries are matters we all have to deal with at times, and they do affect our work. A wise employer

will understand this and treat each employee as a person to be helped when necessary and guided if need be. Most of us know from experience how much a helping hand can mean at times, and how lasting a friendship can be built on a willingness to ease the burden for one another. We all want to be recognized as human beings and treated as such, for it is only then that we can and will do our best work.

It is often necessary for a boss to give criticism. Employees should realize this, expect it, and take it with good grace. However, an employee has a right to expect that the criticism will be given in a courteous, helpful manner, and in private. Criticism given before others almost always leads to resentment which may last for days, or even longer. A good boss knows how to give criticism and when to give praise. The only acceptable purpose of criticism is to make people want to improve their work and to show them how to do it. Criticism should never be used to belittle or humiliate anyone.

An employee has a right to know how he is getting along on the job. Employees want to know from time to time how they are doing on the job. They want to know how they stand with the boss. In fact, a survey of high school cooperative students and young adult workers showed that about 85 per cent of them wished they could have periodic conferences with their supervisors, during which the supervisor would talk frankly and in a friendly way with them about their work. Such a conference should be private and take place at regular intervals--not just when something has gone wrong. Perhaps such conferences cannot be called a "right," but since so many employees seem to want them, we might say that they are very desirable. Properly conducted, and with the proper attitude on the part of both the supervisor and the employee, a conference might well lead to better understanding and cooperation. Most employees not only want their work to be satisfactory, they want to know whether or not it is. Lack of criticism is not an adequate indication of approval.

How can an employee get his rights? This, of course, is the $64 question, the answer to which Congress, labor unions, employers, and employees wish they knew. There is no one answer because no two situations are ever exactly alike. In many instances it is more effective to deserve one's rights than to demand them. In other cases, it seems necessary to insist on having certain rights. But in all situations, the way one goes about what he thinks is right has a great deal to do with whether or not he gets it. It is better to persuade than to push; better to cooperate than to antagonize. This does not mean, however, that one should meekly and weakly give in against his better judgment. We all know, however, that we are more willing to do things for the person who asks us in a pleasant manner. Perhaps this gives us a pretty good clue as to one of the best ways to get our rights.

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UNIT 1: FAMILIARIZATION

TOPIC: Grievances

LESSON OBJECTIVE:
To clarify what a grievance is. To indicate the best way to handle a grievance and to explain the results to be gained by the proper handling of a grievance is the object of the lesson.

REFERENCES:
Information Sheet.

VISUAL AIDS:

STUDY ASSIGNMENT:
Information sheet.

IMPORTANT STUDY POINTS:
1. Learn the difference between a complaint and a grievance.
2. Know how repetition can affect a grievance.
3. Realize that a high emotional state usually accompanies a grievance.
4. Learn why it is better to correct a source of trouble yourself, if possible
5. Find out what you should do before you see your boss about a grievance.
6. Be able to recognize conditions which may lead to a grievance.

WORK ASSIGNMENT:
Classroom:
1. Explain what the word "grievance" means to you.
2. What is the difference between a grievance and a complaint?
3. Explain what is meant by stating that "in handling grievances, five grievances plus one more grievance do not make six, they make ten."
4. Do you think it possible to have a grievance against a person without that person's being aware of the fact?
5. What is the worst way to handle a grievance against your boss?
6. In planning a better way to approach your boss, what questions should you ask yourself?
7. If you were the boss, how do you think you would react to a grievance from one of your employees?
8. What would you do if you learned that a fellow worker had a grievance against you?
9. Do you think it is possible to train one's self not to let a grievance start easily--in other words, to learn not to take offense easily?
10. If a grievance is to be handled satisfactorily, what must be accomplished by all concerned?

11. What are some conditions that might follow when a grievance is handled unsatisfactorily?
12. What seems to you to be the most important and most frequent causes of worker dissatisfaction?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Legislation affecting the worker.

MATERIAL LIST FOR NEXT LESSON:

UNIT 1: FAMILIARIZATION

TOPIC: Grievances

Many workers have been dismissed from good jobs because they did not understand the proper ways of taking their complaints to their superiors, or because they made no attempt to reach an understanding on whatever issues were troubling them. The purpose of this unit is to clarify just what a grievance is, to indicate the best way to handle a grievance, and to explain the results to be gained by the proper handling of grievances.

What is a Grievance?

If we turn to the dictionary to find out what a grievance is, we find that there is no definition suitable to all the situations that may come up between employees and their supervisors. Generally speaking, grievances come from a feeling of injustice which may or may not be expressed as a complaint. A complaint may be defined as an expression of dissatisfaction which affects one or more workers.

We must keep in mind that not all complaints are necessarily based on grievances. There are certain elements within a grievance that do not always occur in just an ordinary complaint. A complaint in many cases is based merely on a difference of opinions. A grievance can also develop from a difference of opinion, but it must also arise from a sense of injustice or wrong which has generated a feeling of exasperation and dislike toward someone. Repetition is a third element of a grievance. When we are irritated only once or twice, we may not have a just complaint, but if the same thing happens a number of times, we seem to lose our patience more easily and more quickly each time it happens, and soon we develop a feeling of personal injury or injustice. This is why grievances seem to "pile up" so that if nothing is done, the condition soon seems twice as bad, and the worker or workers involved become twice as mad.

Everyone who has experienced a grievance can recall that there is quite a strain on personal relationships until such a time as a satisfactory settlement is reached. Thus we can say that any personal irritation that seems to be growing in size each time it happens is becoming a grievance. As long as he broods about an injustice, real or imagined, a worker cannot be completely satisfied with his job. Remember that a grievance remains such until it is satisfactorily settled. It is true that a satisfactory settlement involves the correction of the injustice, but in addition, everybody concerned must also continue on the job without bearing a grudge if a complete resolution of the difficulty is to be achieved.

If you have not already experienced a grievance, you probably will sometime, so let us think about how to handle one. We have seen how a grievance usually grows from a small feeling of injury into a highly emotional situation.

It is in this highly emotional state that an employee is most likely to mishandle a grievance with his employer. This is certainly not what the employee wants, and the door may be thrown wide open for the grievance to grow more serious. In the early stage of a grievance, the employee realizes that he is dissatisfied, but at first does nothing about it. However, when the same thing happens again, he finds himself visualizing just what he would like to do about it. He may even go so far as to practice, mentally, what he is going to say to the boss. All during this process, the emotional strain increases. Finally, he reaches the boiling point and decides to go to the boss and really tell him a thing or two. He faces the boss and gives him a rapid-fire account with words and action as to just what has been happening; how long it has happened; and what ought to be done about it. It is at this point, however, that the employee makes a serious mistake. When he presents his case in the heat of emotion, he weakens his own defense. His boss may either quickly take offense and become angry himself, or he may simply discount the grievance as purely emotional. In either event, the atmosphere is not such as to lead to better understanding and cooperation. It is more likely to lead to a curt reprimand or even dismissal.

Since it is obvious that the desired results cannot be obtained if either party is in a bad humor, it becomes essential that the employee control his temper and his tongue. It does not pay to say or to do things to your superiors which you do not really mean. Never threaten to quit unless you really mean it--you may find your offer accepted!

Now let's consider a better approach to the solution of a grievance. First of all, try not to let minor irritations develop into a grievance. Either do something to correct the source of trouble, or take the matter up with your superior before an emotional situation has developed. If you decide to go to the boss, ask yourself these questions:

1. Are you mentally calm and physically relaxed?
2. Can you present your case without raising your voice?
3. Are you prepared to speak with courtesy as well as with conviction?
4. Are you approaching your superior in a spirit of compromise--are you willing to go half way in working out a solution?
5. Do you want to be careful not to jeopardize your job or your future relations with your boss?

Then, with these things in mind, take up your grievance with your superior. Watch his reactions carefully, and note the results of your conference. With care and experience, you should be able to learn the best way to resolve your personal problems.

A Practice Problem

We have discussed the meaning of grievances and how you as a worker can go about handling a grievance. The following problem is presented to help you to understand a given situation, and to express your opinion as to whether or not a grievance is involved.

A worker complained to his boss that two men had quarreled with him on a personal matter off the job. They were carrying their spite into the job and were making things unpleasant for him while at his work. He appealed to the boss to "straighten those fellows out."

"I don't see why I should mix up with your outside rows," the boss told him, and refused to have anything to do with the situation.

Did the man have a legitimate grievance?
Should the boss have taken a hand in the matter?
How would you handle the situation?

Conditions Which May Lead to Grievances

1. Giving orders without giving reasons
2. Distributing overtime unequally
3. Withholding credit
4. Treating workers unfairly
5. Ignoring complaints
6. Surly, hard-boiled or rough supervision
7. Lack of human interest in workers
8. Broken promises
9. Unequal pay for equal services
10. Inadequate instructions which lead to mistakes
11. Ignoring or repelling suggestions
12. Uncongenial fellbw workers
13. Failure to promote from within
14. High-hat supervision
15. Penalizing workers for conditions beyond their control
16. Reprimanding workers before others
17. Stealing credit for a worker's ideas

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UNIT 1: FAMILIARIZATION

TOPIC: Legislation Affecting the Worker

LESSON OBJECTIVES:
To familiarize the apprentice with the effects of certain legislation upon him and his dependents.

REFERENCE:
Information sheets.

STUDY ASSIGNMENT:
Information sheets.

CAUTION: Instructors should be alert to legislative changes affecting the worker.

IMPORTANT STUDY POINTS:
1. Become familiar with provisions and benefits of the following legislation:

   a. Workmen's Compensation Act (Industrial Insurance).
   b. Washington State Employment Security Act (Unemployment Compensation).
   c. Social Security Act (Old Age and Survivors Insurance).
   d. Fair Labor Standards Act (Federal Wage and Hour Law).

WORK ASSIGNMENTS:
Classroom:

Lab:

Test: Use test on page 01.05.02

INTRODUCTION TO NEXT LESSON:
Construction Safety

MATERIAL FOR NEXT LESSON:

UNIT 1: FAMILIARIZATION

TOPIC: Legislation Affecting the Worker - TEST

1. Industrial insurance benefits include _____and Compensation.

2. There are compensation benefits for _____.

   _____, _____

   and _____.

3. The scheduled rate of compensation payments to a single worker for loss of time from work due to industrial injury or occupational disease is _____ _____per month; the maximum for a worker with wife and children is _____per month.

4. Premiums on Industrial Insurance compensation benefits are paid by the _____ & _____.

5. The time limit for filing an industrial insurance claim is _____.

6. Information regarding industrial insurance may be obtained from any district office of the _____.

7. In order to be eligible for unemployment compensation, a claimant must have earned _____.

8. There is an initial waiting period of _____of before a worker may qualify for benefits.

9. This state finances unemployment insurance benefits mainly by payments by_____on the wages of their _____.

10. Disqualification from benefits may be caused by:

    a. _____

    _____

    b. _____

    _____

    C. _____

    _____

11. Social security is financed by tax contributions from _____

    and _____.

Name _____ Date _____ Score _____

COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION

OLYMPIA, WASHINGTON

LEGISLATION AFFECTING WORKERS

REVISED TO FEBRUARY 1, 1971

In recent years many laws have been passed on both federal and state levels that directly affect the working man, his family and dependents. In the apprentice training time available we cannot go into detail about all this legislation. In this lesson the highlights of the most important laws will be discussed. If an apprentice wishes to seek further detailed knowledge about any of them, he should contact his public library, one of the local offices indicated, his employer or his union. Included in this lesson are industrial insurance, unemployment compensation, old age and survivor's insurance, and wages and hours laws.

A INDUSTRIAL INSURANCE (WORKMEN'S COMPENSATION ACT)

One of the purposes of the Workmen's Compensation Act is to afford to the worker certain and speedy relief in case of industrial accident. The purpose of this lesson is to reduce the law to simple and understandable terms, and to assist in promptly obtaining all the benefits of the Workmen's Compensation Act of the State of Washington. This information is general in nature, and is to serve as a guide in the situations which are most likely to arise under the Act.

1. Workers covered: Generally speaking, all employees engaged in manual labor are automatically covered. Deductions which are automatically made from salary or wages for medical aid (this should not be confused with health coverage as it requires the consent of employee) are proof of coverage by Workmen's Compensation Act. However, employees may be covered without deductions for medical aid being taken from their salary or wages if the employer chooses to absorb these premiums rather than charge them to the employee.

With the approval of their employer, employees who are not otherwise covered may obtain coverage. Such coverage must, of course, be obtained prior to the injury for which a claim is to be made. Forms and information may be obtained from any Service Location of the State Department of Labor and Industries or from the main office in Olympia.

2. How the Workmen's Compensation Act is financed: The premiums for medical benefits, called medical aid premiums, are paid one-half by the employer and one-half by the employee through payroll deductions. It is not unlawful, however, for the employer to absorb the entire medical aid premium and not charge any part of it to the employee.

The premiums for compensation benefits, including monthly compensation for loss of time from work and all disability awards and pensions (called industrial insurance premiums) are paid entirely by the employer. It is unlawful for the employer to charge or deduct from wages or salary any part of such premiums.

Rights to compensation and medical care are not affected by any other insurance which the employee may have. Employees can accept any benefits to which they may be entitled under any other type of insurance and in addition thereto be entitled to receive full industrial insurance benefits from the Department of Labor and Industries.

Payment cannot be reached by creditors through garnishment, execution or attachment until such time as the warrant covering such payment has actually been delivered to the employee by the Department of Labor and Industries.

3. Industrial insurance benefits:

a. Medical benefits include doctor, hospital and nursing care, including x-rays and drugs prescribed by your attending physician, glasses, dental repairs and dentures, artificial appliances, eyes and limbs, where necessary because of an industrial injury or occupational disease.

b. Compensation for loss of time from work is not paid for the day of injury or the three days following said injury, unless the disability continues for 30 or more consecutive calendar days from date of injury. If employer continues to pay full wages or salary, by other than vacation pay, the employee is not entitled to receive monthly time loss compensation. If employee returns to work before his claim is closed and is unable to earn full previous wage or salary due to injury, he will receive the proportionate share of monthly time loss compensation. Scheduled rate of compensation payments for injuries occurring on or after August 6, 1965, are as follows:

SINGLE	$ 185.00
MARRIED	215.00
MARRIED with ONE child under 18 years	252.00
MARRIED with TWO children under 18 years	283.00
MARRIED with THREE children under 18 years	306.00
MARRIED with FOUR children under 18 years	329.00
MARRIED with FIVE children under 18 years	352.00

Payment of monthly time loss compensation has no relationship to whether the claimant is receiving vocational rehabilitation services, but is allowed only when his condition, due to his injury, prevents him from working and is not yet medically fixed. Rate of compensation is governed by the law in effect on the day of the injury.

c. Compensation for permanent partial disability: Lump sum award for injury which causes some permanent partial disability but which does not prevent worker from resuming some gainful occupation. Amount of compensation to which employee is entitled is based on certain schedules which are set forth in the law. Awards vary from $270.00 for loss of little finger at distal joint to $15,000.00 for loss of arm or leg at shoulder or hip joint.

d. Compensation for permanent total disability: Provision is made for a pension to a totally permanently disabled worker (added payments for children under 18 years) and pension thereafter to his widow. A total permanently disabled worker is one whose injury completely and permanently disables the worker from regularly following a gainful occupation. A single worker's monthly compensation is $185.00, a married worker's $215.00, a widow with or without

minor children $140.00, the youngest child $37.00, next youngest $31.00, each additional child $23.00 (for a maximum of five children.)

e. Compensation for fatal injuries: Provision is made for a pension for widow or invalid widower and for minor children of a worker killed in an industrial accident. The widow or invalid widower would receive $140.00 per month, the youngest child $37.00, the next youngest child $31.00, each additional child $23.00, with maximum for the family $277.00.

4. Ten commandments for injured workmen:

1. Immediately upon the occurrence of an injury give notice of such injury, regardless of how trivial it may appear to be. Report to the person designated by the employer to receive notice of accidents.

2. As soon as employee is physically able he should fill out Report of Accident (or Report of Occupational Disease), at the doctor's office of the hospital. This report should be left with the doctor.

3. After employee has completed his part of the Report of Accident and left it with the doctor, he should check to see that the report is completed by the doctor and mailed to the employer.

4. After four weeks from the signing of the Report of Accident, if some word or acknowledgment has not been received, check with the employer to see if report was received by him from the doctor, acted upon, and turned in to the Department of Labor and Industries.

5. After six weeks, if still no acknowledgment has been received, advise the Department of Labor and Industries through a Service Location or by writing directly to the main office in Olympia, giving name and address of employer, the doctor, nature of injury, and the date of injury. No action can be taken until report is filed.

6. As soon as possible employee should get the names and addresses of all witnesses who saw the accident or who have knowledge concerning the same and have such information available if there is an investigation of the claim.

7. While employee is off work, he will receive each month a postal card, called a "certificate of disability", containing portions to be filled in by the doctor and by the workman. This card should promptly be filled in by both doctor and employee and returned to the Department of Labor and Industries. Payment cannot be made for loss of time from work until this card is returned.

8. Read all communications from the Department of Labor and Industries and follow carefully all instructions.

9. After an award of compensation has been made to the employee (or other final action taken, such as rejection) which he believes to be incorrect or unlawful, he must apply for reconsideration within sixty days after receipt of printed order.

10. After a claim is closed, application for further compensation or treatment can be made providing that employee's condition has become worse since the closing of the claim. Such application must be filed with the Department of Labor and Industries within five years from the date of the closing order.

5. Filing limitations: A workman loses his rights, irrespective of the merits of his claim, unless he meets certain deadlines for filing necessary reports and applications with the Department of Labor and Industries. These limitations are as follows:

Time limit for filing of claim: 1 year after the day upon which the injury occurred.
Time limit for protest or request for reconsideration of an order of the Department must be received by the Department within 60 days from date of receipt of the order. This also applies to appeals to the Board of Industrial Insurance Appeals which is a separate agency composed of a representative from labor, one from management and one from the general public.
Time limit for appealing to court from the Board of Insurance Appeals final order: 30 days.
Time limit for requesting reopening of claim: 5 years.

NOTE: Information regarding Industrial Insurance was taken from a pamphlet entitled: "Reference Manual Relative to Benefits Under Workmen's Compensation and Medical Aid Acts, State of Washington" and published by the Department of Labor and Industries of the State of Washington. For copies of this manual and for additional information contact any of the following Service Locations or the Department of Labor and Industries:

Aberdeen	Everett	Port Angeles	Vancouver
Bellingham	Kennewick	Seattle	Wenatchee
Bremerton	Longview	Spokane	Yakima
Ephrata	Mt. Vernon	Tacoma	

B. UNEMPLOYMENT COMPENSATION

Under the Federal-State system of unemployment compensation, established under the Federal Social Security Act and the Washington State Employment Security Act, there has been developed the particular program that seems best adapted to conditions prevailing within this state. It is important that apprentices know the details of the employment security program and understand how it functions.

1. Who is covered? In the State of Washington a worker in any firm employing one person at any time is covered by the plan, unless specifically excluded such as: agricultural labor, domestic service in private homes, service for relatives, and self-employment including agents on commission.

2. How is the program financed? This state finances unemployment benefits mainly by contributions from employers on the wages of their workers. There is no tax on employees or deduction from wages. The funds collected are held for the state in the unemployment trust fund (at interest) in the United States Treasury. From this fund, money is drawn to pay benefits. The maximum rate for employer contribution is 2.7% of wages paid, limited to the first $4,200.00 earned by each worker within a calendar year. Congress makes appropriations for the cost of administration of this Federal-State program.

3. How does one qualify for benefits?

a. You must be unemployed to the extent that your earnings are less than your benefits would be for total unemployment.

b. You must have earned not less than $1100 in the first four of the last five completed calendar quarters prior to the quarter in which you file the initial claim for benefits. (The qualifying amount is adjusted annually.)

c. You must register for work with the Employment Service.

d. You must file a claim for benefits (by mail if necessary) and must serve one "waiting week" during which you are not employed.

e. You must be actively seeking work, be physically able to work, and immediately available for work.

f. You must report each week in person unless directed otherwise by the person taking your claim.

4. What are the benefits? The amount of your benefits is determined by your earnings during the four-quarter period mentioned in 3 b. That four-quarter period is called the base year.

5. What will cause one to become disqualified?

a. Failure to apply for available suitable work or refusal to accept suitable work without good cause disqualifies for benefits from the date of such failure or refusal and until the individual returns to work and earns an amount equal to his weekly benefit amount in each of five calendar weeks.

b. Voluntarily quitting work without good cause disqualifies for benefits for that week and for the next ten weeks.

c. Being discharged or suspended for misconduct connected with your work disqualifies for benefits for that week and for the next ten weeks.

d. Knowingly withholding a material fact or making a misrepresentation or false statement in order to obtain benefits disqualifies for benefits for that week and for an additional 26 weeks whenever a claim is filed after being thus disqualified. Criminal prosecution is also a possibility.

e. Being out of work because of labor and management disputes, generally speaking, disqualifies for benefits.

6. Can one appeal a determination of disqualification?

An appeal in writing submitted within ten days of the mailing or personal delivery of a notice of disqualification, and delivered to the State Employment Security Office or a local office, will be considered first by an examiner of the department. A second appeal will be heard and determined by the Employment Security Commissioner. Following this, appeal may be made to the courts.

7. Administration. In this state unemployment compensation is administered through the Employment Security Department of the State government. Its executive officer is the Commissioner, who appoints nine members to a state advisory council (3 employers, 3 employees, 3 public). The state council shall aid the agency in formulating policy and discuss problems related to the administration of the unemployment insurance act and assure impartiality and freedom from political influence in the solution of such problems. All employees of the department, except policy-making heads, are appointed on a merit basis.

Information taken from:

Comparison of State Unemployment Insurance Laws as of July 6, 1969, published by the United States Department of Labor, Bureau of Unemployment Security, and

Unemployment Compensation Information for Claimants, SF 8139 (Rev. 11-70)

C. SOCIAL SECURITY (Old Age Survivors Insurance)

The social security act was established by Congress in 1935, at which time the Social Security Board consisting of three members nominated by the President and confirmed by the Senate was established to administer the program of old age and survivors insurance for industrial and commercial workers and their dependents.

The President's reorganization plan No. 2, effective July 6, 1946, abolished the three-member Social Security Board and transferred its functions, as well as certain other federal functions, to the Federal Security Administrator, head of the Federal Security Agency, of which the Social Security Board was a part. On that date, the Social Security Administration was established, with the former Chairman of the Board as Commissioner for Social Security.

On April 11, 1953, the Department of Health, Education, and Welfare was established with the Social Security Administration as a component of that department. Within the Social Security Administration are four bureaus: Bureau of Old-Age and Survivors Insurance; Bureau of Public Assistance; Children's Bureau; Bureau of Federal Credit Unions.

The Social Security Act has been amended several times since its original passage. As a result, monthly benefits may be paid to the families of retired, disabled, or deceased workers, as well as to the retired or disabled person himself. The beneift amounts have been materially increased over the years until now the minimum benefit amount is $64.00 and the maximum is $434.40 a month on any one social security account. The benefit amounts are subject to fluctuation and current amounts can be ascertained by inquiry at any Scoial Security Administration office or from their publication SSI-35. Coverage has been extended so that now over nine out of every ten persons earning a living are covered under the program. The following summary describes the old-age, survivors and disability insurance program including the amendments of 1970.

1. Benefits payable to:

a. Retired worker age 65 or woman worker age 62.

b. Wife of retired worker if she is age 62 or over, or regardless of age if entitled child under 18 or adult disabled child is present. Dependent husband* of retired worker if he is age 65 or over.

c. Widow or dependent widower,* age 62 or over, of deceased worker.

d. Children (under age 18) of retired worker, and children of deceased worker and their mother (the worker's widow, or in some cases his divorced wife) regardless of her age. Adult disabled children qualify as though they were under age 18.

e. Dependents parents,* age 65 for father, 62 for mother, or over, of deceased worker.

f. In addition, a lump sum payment upon death of an insured worker.

*Proof of dependency must, in general be filed within two years of worker's entitlement in cases of a dependent husband, and within two years of death in cases of a depentdent widower or dependent parent.

2. Insured status:

a. Based on "quarters of coverage," and individual paid $50 or more of non-farm wages in a calendar quarter is credited with a quarter of coverage for the quarter. ($7,800 of wages in a year automatically gives four quarters of coverage.) An dividual paid $100 or more of farm wages in a year is credite with one quarter of coverage for each full $100 of such wages ($400 or more of such wages automatically gives four quarters of coverage.) An individual with creditable self-employment income in a year (in general, $400 or more) automatically receives four quarters of coverage.

b. Fully insured status gives eligibility for all benefits except dependent husband's benefits and dependent widower's benefits, which require both fully and currently insured status, and child's benefits in respect to a married woman which may be payable only if she has currently insured status. A fully insured person is one who at or after attainment of retirement age, onset of disability, or death fulfills any one of the following three alternative requirements:

1. Has 40 quarters of coverage.
2. Has at least 6 quarters of coverage and at least one quarter of coverage (acquired at any time after 1936) for every two quarters elapsing after 1950 (or age 21, if later) and before retirement age, onset of disability, or death.
3. Has a quarter of coverage in all but four of the quarters after 1954 (but not including the quarter in which he attains retiremement age, becomes disabled or dies.)

Most persons who become fully insured will go under the first or second alternatives. The second alternative enables a person who attained retirement age after July 1954 to become fully insured with just six quarters of coverage acquired at any time. Elderly persons who are newly covered under the 1954 or 1956 Amendments may meet the third alternative even though not the second. The third alternative is not effective in any case for persons reaching age 65 or dying after September, 1960.

c. Currently insured status (eligible only for child, mother, and lump-sum survivor benefits; necessary for husband's and widower's benefits) requires 6 quarters of coverage within 13 quarters preceding death or entitlement to old-age benefits.

3. Primary insurance amount:

a. The primary insurance amount is the amount paid to the retired or disabled worker. It is derived from the insured person's average monthly earnings. For those now qualifying for benefits for the first time, average monthly earnings are determined by dividing all covered earnings by all months after December 31, 1936, December 31, 1950, or the last day of the year in which a person reaches age 21, if that date is later than January 1, 1951. The closing date for figuring this average monthly earnins figure is ordinarily the first day of the year in which the person becomes disabled, files his application after reaching retirement age, or dies. As many as five years of the lowest earnings can be dropped out of this computation.

b. b. The minimum retirement benefit is $64.00 a month and the maximum is $250.

c. If a woman elects to receive her benefits starting at age 62 rather than waiting until 65, her payment will be reduced by 20%.

4. Benefits Amounts for Dependents and Survivors, Relative to Worker's Primary Insruance Amount:

a. Wife or dependent husband--one-half of primary. (Wife's benefit will be reduced by 25% if she files at age 62.)

b. Widow or dependent widower--three-fourths of primary.

c. Child--one-half of primary, except that for deceased worker's family, an additional one-quarter of primary is divided among the children.

d. Dependent parent--three-fourths of primary.

e. Lump-sum death payment--three times primary, with $255 maximum.

f. Maximum family benefit is $434.40.

g. Minimum amounts payable to any survivor beneficiary where only one is receiving benefits is $38.90.

h. For examples of monthly payments beginning January 1, 1970, see pamphlet publication of the U. S. Department of Health, Education, and Welfare, Social Security Administration SSI-35, May, 1970.

5. Employment permitted without suspension of benefits (Called "Work Clause" or "Retirement Test"):

A beneficiary can earn $1,680 in a year in any employment, covered or non-covered, without loss of benefits. In no case, however, are benefits withheld for any month in which the beneficiary's remuneration as an employee was $140 or less and in which he rendered no substantial services in self-employment. For beneficiaries age 72 or over, there is no limitation. If a retired worker's benefit is suspended, so also are the benefits of his dependents.

6. Covered employment:

a. All employment listed below which takes place in the 48 states, the District of Columbia, Alaska, Hawaii, Puerto Rico, or the Virgin Islands, or which is performed outside the United States by American citizens employed by an American employer, (or, by election, by an American citizen employed by a foreign subsidiary of an American employer) is covered employment. Also covered, under certain conditions, is employment on American ships and aircraft outside the United States.

b. Individuals engaged in the following types of employment are covered:

1. Virtually all employees in industry and commerce, other than long-service railroad workers (the service of those who retire or die with less than ten years of railroad service is covered.)

2. Farm and nonfarm self-employed with $400 or more of net earnings from covered self-employment.

3. State and local government employees not covered by a retirement system, and those covered by a retirement system on a referendum basis in which a majority of those eligible to vote are in favor of coverage; in any event, the State must elect such coverage.

4. Nonfarm domestic workers (based on $50 in cash wages from one employer in a quarter.)

5. Farm workers, including farm domestic workers (based on $150 or more in cash wages from any one employer in a year.)

6. Ministers and members of religious orders (other than those who have taken a vow of poverty) either employed by non-profit institutions (in positions which only a minister can fill) or self-employed are covered on individual elective basis as self-employed. Other employees of non-profit institutions are covered on elective basis; employer must elect coverage, and at least two-thirds of employees must concur in coverage (then all employees concurring in coverage and all new employees are covered).

7. Federal employees who are not now covered by retirement system established by law of the United States other than a few specifically excluded small categories.

8. Definition of "employee" is broadened from strict common-law rule to include following groups as "employees"; full-time wholesale salesmen; full-time life insurance salesmen; agent-drivers and commission drivers distributing meat, vegetable or fruit products, bakery products, beverages (other than milk), or laundry or dry cleaning services; and industrial homeworkers paid at least $50 in cash during a quarter and working under specifications supplied by employer.

9. Members of the Armed Forces.

7. Wage credits for World War II and subsequent military service:

World War II veterans and those in service thereafter (including those who die in service) are given wage credits of $160 for each month of active military (including naval) service in World War II ans thereafter through December, 1956, except that credit is not given if service is used for any other Federal retiremtn or survivor system (other than compensation or pensions payable by the Veterans Administration); additional cost is to be borne by trust fund.

8. Maximum annual wage and self-employment income for benefit and contribution purposes:

$4,800 per year for 1959 and after ($4,200 in 1955-58, $3,600 in 1951-54, and $3,000 before 1951). $6,600 in 1966-67, $7,800 in 1968-_____.

9. Tax (or contribution) rates:

a. 2-1/4% on employer and 2-1/4% on employee through 1958, 2-1/2% for 1959, 3% for 1960-62, 3-1/2% for 1963-65, 4.2% for 1966, 4.4% for 1967-68, 4.8% for 1969-70, 5.2% for 1971_____.

b. For self-employed the rate is 1/12 times that for employees. Self-employment income taxed is, in general, net income from trade or business; special optional provisions based on 50% of gross income are available for farmers with low net income.

c. No provisions for authorizing appropriations from general revenues to assist in financing the program.

For further information contact one of the 13 district Social Security offices in the following Washington cities. The offices are listed in local phone books under "United States Government, Health, Education, and Welfared, Dept. of."

Aberdeen	Olympia	Vancouver
Bellingham	Seattle	Walla Walla
Bremerton	Spokane	Wenatchee
Everett	Tacoma	Yakima
Lewiston, Idaho		

D. FEDERAL WAGE AND HOUR LAW

The Fair Labor Standards Act of 1938, known as the Federal Wage and Hour Law, was approved by the President on 25 June, 1938, and became effective 24 October 1938. This legislation is one of the most important labor measures adopted in rec recent years, for it seeks to correct and to eliminate as rapidly as possible in industries engaged in interstate commerce or in the production of goods for interstate commerce, or enterprises with an annual dollar volume in excess of $250,000, labor conditions detrimental to the maintenance of minimum standards of health, efficiency, and general well-being.

The Law creates a Division of Wages and Hours within the Department of Labor under the direction of an administrator appointed by the President by and with the advice of the Senate.

The Fair Labor Standards have been amended, the latest effective February 1, 1967, providing the following standards: A minimum wage of $1.60 an hour; time and one-half pay for overtime after 40 hours (except where otherwise specially provided); a minimum age of 14 years for general employment (except for occupations declared hazardous and certain occupations outside of school hours).

The child labor provisions of the law prohibit producers, manufacturers, and dealers from shipping through interstate commerce, goods produced in an establishment in which within 30 days prior to shipment oppressive child labor has been used. The term "oppressive child labor" applies to employees under the age of 14 years in any occupation or employees between the ages of 16 and 18 in any occupation which has been found and declared by the Children's Bureau to be particularly hazardous for children or detrimental to their health and well-being.

Farm workers, newspaper delivery boys, employees in small (under $250,000) retail and service establishments, employees of street, suburban, interurban electric railway or motor bus carriers, seamen, and persons employed in bona fide executive, administrative, and professional capacities are exempt from both the wage and hour provisions of the law.

The Act has conferred broad investigatory powers on the Administrator as to wages, hours, and other conditions and practices of employment in any industry subject to the Act. He may utilize the services of the bureaus and divisions of the Department of Labor for necessary investigations and inspections, as well as the services of the State and local agencies. The Administrator is empowered to order employers to maintain adequate records on wages and hours.

The law provides that any person willfully violating the Act is subject to a fine and imprisonment. However, no penalty or imprisonment may be imposed for a first offense. An employer violating the hour or wage provisions of the Act may be liable to his employees for twice the difference between the wage received and the legal minimum wage, and also for any unpaid overtime compensation.

For further information see "Hand Reference Guide to the Fair Labor Standards Act" and CL 101, or Fair Labor Standards Act of 1938 as Amended, U.S.D.L. Publication 1167.

NOTE: Instructors should be alert to legislative changes affecting the worker. References below are to sources of information in the several departments and their informative manuals which are kept up to date and available at the listed locations.

1. Reference Manual relative to benefits under the Workmen's Compensation and Medical Aid Acts

   State Industrial Insurance Office
   State Administration Building
   Olympia, Washington 98504

2. Unemployment Compensation Information for Claimants S.F. 8139 (Rev. 11-70)

   Employment Security Building
   Room 417
   Olympia, Washington 98504

3. Your Social Security SSI-35

   Social Security Administration
   1007 South Washington Street
   Olympia, Washington 98504

4. The Construction Industry Under Fair Labor Standards Act W.H. 1310 Oct. 70

   Regulations - Labor Standards Provisions WHPC #1244

   Public Contracts Act - Rulings and Interpretations No. 3 - May 1963

   U. S. Department of Labor
   Smith Tower Building
   Room 1821
   Seattle, Washington

The preceding pages 01.05.03 to and including 01.05.13 were compiled by the Coordinating Council for Occupational Education, Olympia, Washington (1971).

UNIT 1: FAMILIARIZATION

TOPIC: Construction Safety

LESSON OBJECTIVE:

The purpose of this lesson is to make the apprentice acquainted with the Safety Standards and call to his attention certain specific practices that should become habitual with the carpenter.

REFERENCES:

Safety Standards for Construction Work (Red Book), Department of Labor and Industries, State of Washington.
Carpentry apprentice training "course" U.B.of C.

STUDY ASSIGNMENT:

Safety Standards, pp. 1-14, and find the remainder of the reading material from the index in Safety Standards (Red Book) as directed in the Work Assignment.
U.B. of C., Unit 1, pages 1-19.

IMPORTANT STUDY POINTS:

1. Fix in your mind the importance to yourself and to your fellow workmen of being safety conscious and of being constantly on the alert for dangerous conditions.
2. Note that the Safety Standards are enforceable by law.
3. Pay particular attention to the Information under the "General Requirements" in Part C in the Safety Standards (Red Book), and to the definitions in Part B.
4. Remember that safety is a personal matter. It is up to you to insist upon safe working conditions. It is up to you to make them safe.

WORK ASSIGNMENT:

Classroom:

1. By use of the index in the Safety Standards (red book), find and read the regulations covering the following:
   a. Power driven tools
   b. Piling of lumber
   c. Ramps and runways
   d. Excavation machines
   e. Trenches
   f. Concrete Work
   g. Carpenter work
   h. Ladders
   i. Scaffolds

Lab:

Test: Use test on next page.

INTRODUCTION TO NEXT LESSON:

MATERIAL FOR NEXT LESSON:

UNIT 1: FAMILIARIZATION

TOPIC: Construction Safety - TEST

If you think the statement is true, encircle the "T". If you think the statement is false, encircle the "F".

T. F. 1. Employees who find unsafe conditions should first report these conditions to the Dept. of Labor and Industries.

T. F. 2. It is the duty of the employer to furnish hard hats where the danger of falling objects requires their use.

T. F. 3. It is not illegal for a person to use intoxicants on the job.

T. F. 4. It is regarded as safe for a person to ride on a hoist, provided no materials are also being carried.

T. F. 5. Provision of drinking water is an employee's own responsibility.

T. F. 6. Provision of sanitary facilities is not an employer's responsibility.

T. F. 7. Serious accidents must be reported to the Department of Labor and Industries and evidence not destroyed until an investigation has been made.

T. F. 8. Loose clothing, ties and scarfs are regarded as safe to wear around machines.

T. F. 9. Electrical tools used outdoors need not be grounded unless the ground is wet.

T. F. 10. A ladder should be placed so that its foot is 1/4 of the ladder length from the perpendicular.

T. F. 11. When a crane is operating in the proximity of a power line, the power must always be turned off.

T. F. 12. The foreman is responsible for the safety of his crew and must enforce the regulations.

T. F. 13. On all jobs persons designated as safety inspectors must be appointed.

T. F. 14. As many workmen as possible should take a First Aid course.

T. F. 15. Men are not allowed on ramps when trucks are also using them.

T. F. 16. A person cannot be allowed to work alone in a trench over four (4) feet deep.

Continued on next page.

TEST - Continued

T. F. 17. It is not necessary to use a "push stick" for pushing material through a power saw.

T. F. 18. A toe board is used to keep a workman from tripping over objects.

T. F. 19. A guard rail is required on the exposed edges of all scaffolds and runways when there is danger of a person falling.

T. F. 20. Tube steel scaffolds are not regulated by safety standards.

T. F. 21. A swinging scaffold should have toe boards as well as guard rails.

T. F. 22. Ladders can never be used for supporting scaffolds.

T. F. 23. A safe spacing for ladder rungs is 12 inches.

T. F. 24. When lumber is piled over four (4) feet high it should be cleated.

T. F. 25. Stairways are regarded as hazards in the home.

T. F. 26. Heat exhaustion is due to the lack of sufficient salt in the body.

T. F. 27. A split or cracked handle on an axe or hammer should be taped.

Name _____ Date _____ Score _____

UNIT 1: FAMILIARIZATION

TOPIC: Mathematics of the Trade: Part I

LESSON OBJECTIVE:

The carpenter is often called upon to apply his skill with mathematics. He must be able to figure volumes of forms to be filled with concrete, and must be able to lay out and build objects of various geometrical shapes. He should understand the use of the framing square and the derivations of its tables, and should be able to "figure" material for a job. The lessons in this unit will cover the mathematics the carpenter's apprentice will need.

REFERENCES:

U.B. of C. Mathematics for Carpentry.

VISUAL AIDS:

STUDY ASSIGNMENT:

U.B. of C. Math. for Carpentry pages 1-9. Review Diagnostic test, lesson 01-02-01

IMPORTANT STUDY POINTS:

1. Be orderly in your written work and you will be more orderly in your thinking.
2. Master each lesson before going to the next. Each lesson is prerequisite to the next.
3. Mathematics can be learned only by doing Many, Many problems.
4. Know the multiplication table up to twelve.
5. Try to develop the ability to judge immediately which operations are required to solve a problem.
6. Know the signs that are used to indicate the four fundamental operations.

WORK ASSIGNMENT:

Classroom:

U.B. of C. Math for Carpentry page 1-9.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Math of the Trade.

MATERIAL LIST FOR NEXT LESSON:

UNIT 1: FAMILIARIZATION

TOPIC: Mathematics of the Trade: Part II

LESSON OBJECTIVE:
This lesson includes fractions, decimals, percentages. These are the fundamental operation of math. necessary for the Carpentry trade.

REFERENCE:
U.B. of C. Mathematics for Carpentry

VISUAL AIDS:

STUDY ASSIGNMENT:
U.B. of C. Math for Carpentry page 10-25, page 74.

IMPORTANT STUDY POINTS:

1. Be able to define:
   a. least common denominator
   b. common denominator
   c. proper fraction
   d. improper fraction
   e. reducing fractions
   f. special meaning of the word "of"
   g. factor.

2. Think of a decimal as a fraction.

3. Be able to change decimals to common fractions and common fractions to decimals. This is important and has practical application to the carpentry trade.

4. Always remember that the word "percent" means "hundredths."

5. Change percent to decimals, change decimals to percent.

6. Study well the table of equivalents.

WORK ASSIGNMENT:
Classroom:
U.B. of C. Math for Carpentry page 10-25.

Test:

U.B. of C. Math for Carpenters.
page 13 problem 1-8.
page 14 problem 1-4, 1-7.
page 23-24 problem 1-6.
page 25 problem 1-6.

INTRODUCTION TO NEXT LESSON:

Trade Terms and safety hints.

MATERIALS FOR NEXT LESSON:

UNIT 2: TOOLS

TOPIC: **Trade Terms and Safety Hints**

LESSON OBJECTIVE:

To emphasize the proper names and use of carpentry tools, and provide the apprentice with an understanding of the terms used in relation to tools and the association with all tools.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.

Modern Carpentry, Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit I, page 34-41, page 47, 61
Modern Carpentry, page 25, 26

IMPORTANT STUDY POINTS:

1. Be able to understand and use good safety practices in all of your work, both on the job and off.

2. Know the proper and wise safety precautions when using all tools whether they are hand tools or power (portable).

WORK ASSIGNMENT:

Classroom:

1. What primary tools should be in the kit of every carpenter's apprentic
2. Name ten secondary tools needed when he has completed his training.
3. What is the carpenter's most important measuring tool?
4. Of all the carpentry tools which one is used the most?
5. Why does the carpenter usually make for himself such devices as: the sawhorse, work bench, step ladder, miter box, straightedge, door jack, and his various tool boxes? Why is it important for an apprentice to learn how to make a first-rate sawhorse?
6. List as many different accidents as you can that occur in the carpentry trade.
7. What should be done when the following accidents occur:
    a. Cuts, bruises, skin breaks
    b. Burns
    c. Heat exhaustion
    d. Damage to face
    e. Damage to eye
    f. Serious injuries

8. What first aid supplies should a carpenter include in his equipme
9. List 13 general safety rules on power equipment.
10. Basic safety rules for portable power-driven saws.
11. What is meant by the term "clearing" in regard to safety regulati
12. What are the safety requirements for demolition work?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:
Measuring, guiding, testing, layout, and marking tools.

MATERIAL LIST FOR NEXT LESSON:

UNIT 2: TOOLS

TOPIC: Measuring, Guiding, Testing, Layout, and Marking Tools

LESSON OBJECTIVES:

To describe the system of measurement used by carpenters, and also to give the apprentice an opportunity to learn the types of measuring, guiding, testing, layout, and marking tools, their application and care.

REFERENCES:

Carpenter Apprentice Training Course, U.B. of C.
Modern Carpentry, Wagner

VISUAL AID

STUDY ASSIGNMENT:

U.B. of C. Unit I page 62, 64, 73-75, 89-94.
Modern Carpentry page 8, 9, 10.

IMPORTANT STUDY POINTS:

1. Be able to recognize and use correctly the following: steel tape (50', and 100'), pocket tape, folding rule (6'), boxwood rule (2'), framing square, combination square, try-square, sliding T-bevel, spirit level, plumb bob, line level, chalk line, and scribers.

2. Understand all divisions of the measuring devices, such as the fractions: 1/16, 1/8, 5/8, etc.

WORK ASSIGNMENT:

Classroom:

Lab:

Test: Use test on next page.

INTRODUCTION TO NEXT LESSON:

Tooth Cutting, Edge Cutting, Smooth Facing, and Boring Tools.

MATERIAL LIST FOR NEXT LESSON:

UNIT 2: TOOLS

TOPIC: Measuring, Guilding, Testing, Layout, and Marking Tools - TEST

Matching Test

___1 Chalk line	a. Tool for fitting boards to irregular surfaces
___2 Straight edge	b. Used for marking the position of walls and piers
___3 Marking gauge	c. Making circles and arcs
___4 Butt gauge	d. Used for spacing distances 16" o. c.
___5 Scriber	e. Used for transferring angles
___6 Dividers	f. To draw a straight line between two layout points
___7 Sliding T-bevel	g. Gauging of parallel lines from a planed edge or surface
___8 Angle Divider	h. For marking butt hinges
___9 Framing square	i. Used in bisecting angles
___10 Trammel points	j. To lay out round corners
___11 Level	k. Tool for marking angles of 30°, 60°, and 74°
___12 Plumb	l. Metal points clamped on a wooden beam
___13 Aluminum	m. A level hung on a line
___14 Line level	n. Tool used for taking inside measurements
	o. Any straight edge and level
	p. A straight edge and level
	q. A line or plane surface that stands upright
	r. Material for manufacture of spirit levels

Name _____ Date _____ Score _____

UNIT 2: TOOLS

TOPIC: Tooth Cutting, Edge Cutting, Smooth Facing, and Boring Tools

LESSON OBJECTIVE:

To identify and understand the use and care of the different types of cutting tools.

REFERENCES:

Carpenter Apprentice Training Course, U.B. of C
Modern Carpentry, Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

U.B. of C. Unit I, page 34, 35, 64-68, 95-108.
Modern Carpentry page 10-15.

IMPORTANT STUDY POINTS:

1. Learn how to care for your own saws and how to store them properly.
2. Learn how to prevent rusting of saws on the job during inclement weather.
3. Pay particular attention to the type of saw to be used for the specified job at hand.
4. Know how to use all saws properly.
5. Know how to select your edge cutting tools.
6. Learn to appreciate the value of sharp tools.
7. Know how to rough, pare and mortise with a chisel.
8. List as many planes as you can. Give the approximate length of each.
9. What is meant by throat or mouth adjustment?
10. What is meant by depth adjustment?
11. What is lateral adjustment?
12. Name the three functions of the plane iron cap.
13. Acquaint yourself with various types of square shank bits, twist drills, and countersinks.
14. Understand the sizes of bits and twist drills.
15. Be able to file or sharpen your own different types of bits.
16. What does the number on the tang of a square shank bit indicate?
17. What is a forstner bit?
18. What is an expansive bit?
19. How do you file an auger bit?

WORK ASSIGNMENT:
Classroom:

Lab:

Test: Use Test on next page.

INTRODUCTION TO NEXT LESSON:
Fastenings and Their Tools; Holding & Supporting Tools & Devices; and Prying Tools.

MATERIAL LIST FOR NEXT LESSON:

UNIT 2: TOOLS

TOPIC: Tooth Cutting, Edge Cutting, Smooth Facing, and Boring Tools - TEST

1. A rip saw is used for cutting _____the grain of wood.
2. For cutting hardwood or finish lumber it is best to select a saw with _____ teeth to the inch.
3. For a saw to cut freely in wet lumber the teeth must have plenty of _____.
4. The type of file used for sharpening a hand saw is:

    1. Flat
    2. Square
    3. Oval
    4. Triangular

5. When using the chisel for heavy work the bevel is usually placed on side _____the wood.
6. The metal in a chisel is such that if it is used for prying it will_____.
7. Why should small nicks in a chisel be ground out?
8. How may a chisel be forced along in heavy work?
9. When very accurate marking is needed which is best to use, a carpenter's pencil or a jack knife?

Name _____ Date _____ Score _____

UNIT 2: TOOLS

TOPIC: **Fastenings and their tools, holding and supporting tools and devices, and prying tools**

LESSON OBJECTIVE:

To acquaint the apprentice with the classification and use of nails, screws, bolts and other fasteners. The use of clamps and vises also the prying tools.

REFERENCES:

Carpenter apprentice Training Course U.B. of C.
Modern Carpentry, Wagner

VISUAL AIDS:

Transparencies as available U.B. of C.

STUDY:

U.B. of C. Unit I page 69-70. page 109-111.
Modern Carpentry page 16, 17-19. - 67, 68 page 102-103. page 426.

IMPORTANT STUDY POINTS:

1. Be able to recognize the common types of nails and know how and where and when they are used.
2. Know the different types of commonly used screws, bolts and metal fasteners for masonry and concrete walls.
3. Be able to explain how to use miscellaneous fastenings.
4. Understand how and when to use holding tools.
5. Understand the use and care of the tools on page 16 of Modern Carpenter.

WORK ASSIGNMENT:

1. What kind of a vise does a carpenter often take with him on the job?
2. How do you use a door jack?
3. List the parts of a claw hammer.

4. What two common shapes of heads are there?

5. Describe a pinch bar

Lab:

Test: (See next page)

INTRODUCTION TO NEXT LESSON:

The Sharpening of Tools

MATERIAL LIST FOR NEXT LESSON:

UNIT 2: TOOLS

TOPIC: Fastenings and their tools, holding and supporting tools and devices, and prying tools - TEST

Test:

___1.	Common nail	a.	Considerd as a special finishing nail
___2.	Wire brad	b.	Used extensively in fastening sub flooring and wall sheathing
___3.	8d nail	c.	Used for exterior finish work
___4.	Toggle bolts	d.	Used in temporary construction work
___5.	Box nail	e.	For joining together all framing member and securing sheathing or subfloor to frame work.
___6.	Cut nail	f.	For installing such hardware as hinges, barrel bolts, and cupboard catches
___7.	Wood screw	g.	Fastener for wall insulating boards and bevel siding
___8.	Roofing nail	h.	Sometimes specified as a fastener for flooring
___9.	Duplex head	i.	Have large heads and are used for fastening flexible material in place
___10.	Finishing nail	j.	Used to fasten work to follow tile walls

Name _____ Date _____ Score _____

UNIT 2: TOOLS

TOPIC: Sharpening Tools

LESSON OBJECTIVE:

1. How to sharpen your own tools. Sharp tools do good and fast work.
2. Describe the grinder, oil stone, and files and give a working knowledge of each.

REFERENCES:

Carpenter Apprentice Training Course, U. B. of C
Modern Carpentry, Wagner
Manufacturers' pamphlets

STUDY ASSIGNMENT:

U. B. of C., Unit I, pp. 70, 96-101
Modern Carpentry, pp. 20-23

IMPORTANT STUDY POINTS:

1. Learn the relationship of grinders, stones, and files to sharpening your specific tools. When and how to use?
2. Learn facts about the grinders and be familiar with the safety factors involved.
3. Understand the proper way to use and care for a stone.

WORK ASSIGNMENTS:

Classroom:

1. List the different files and give a specific job for each.
2. How do you use an oil stone in sharpening a chisel?
3. Know how to sharpen your own tools.

Lab:

Tests:

INTRODUCTION TO NEXT LESSON: Power Tools

MATERIAL LIST FOR NEXT LESSON:

UNIT 2: TOOLS

TOPIC: Power Tools

LESSON OBJECTIVES:

1. To describe and explain the sizes of electric hand saws, uses of saws, blades available, and to provide a check-off list of safety points to be followed.
2. To call attention to air-powered staplers and nailers and their safety rules.
3. To describe and explain the other electric hand tools, their uses and their dangers.
4. To call attention to the radial arm saw, circular saw, and jointer, and their safety rules.

REFERENCES:

VISUAL AIDS:

STUDY ASSIGNMENT:

IMPORTANT STUDY POINTS:

WORK ASSIGNMENTS:

Classroom:

Lab:

Each student goes through the items on the check-off list for the portable circular saw. After successfully performing each item he receives a ✓ or X indication in the appropriate space. Each student should be assigned a list.

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

INFORMATION SHEET FOR PORTABLE CIRCULAR SAW "SKILSAW"

Changing Blades

1. Did he disconnect the power to the saw? _____

2. Does he have the proper wrench for removing the stud? _____

3. Did he look for and use the blade locking device? _____

4. If the saw was not equipped with a blade locking device, did he wedge the blade to keep it from rotating? _____

5. Did he attempt to turn the blade stud the wrong direction? _____

6. Did he remove the blade stud and outer washer correctly? _____

7. Did he retract the guard as far as it would go? _____

8. Did he lift the blade up and over the saw shaft and slide it out correctly? _____

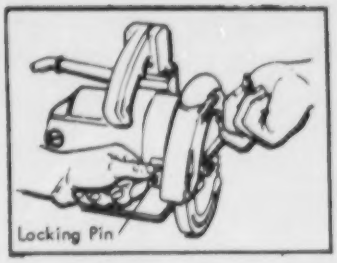
9. Did he check the saw for arbor type: round _____ or diamond _____

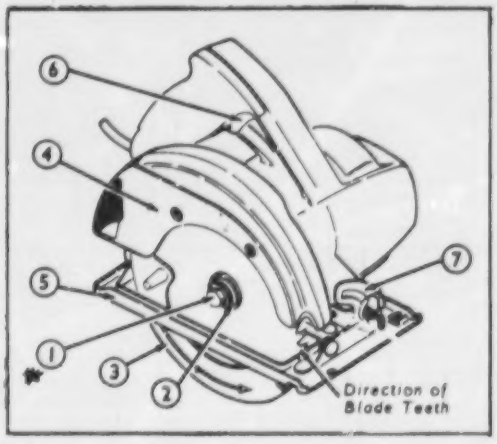
10. Did he make the correct choice of blade for the job to be done:

    Teeth _____

    Arbor size _____ ○

    Arbor shape _____





* BLADE STUD

11. Before replacing the blade, did he inspect the guard operation? _____

12. Did he check the blade for correct rotation? _____

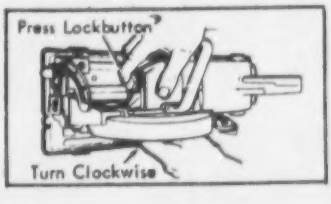
13. Did he fit the blade onto the inner washer and make certain that the blade had the correct arbor insert and that it seated properly? _____

14. Did he place the outer washer on the shaft _____ and thread the stud snuggly with fingers before using the wrench? _____

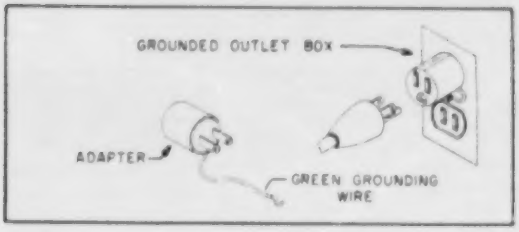
15. Did he make sure that the blade and outer washer were fitted properly? _____

16. Did he tighten the stud securely with the wrench? _____

17. Did he swing the blade to make sure that the points on the teeth did not make contact with any metal? _____



INFORMATION SHEET FOR EXTENSION CORDS



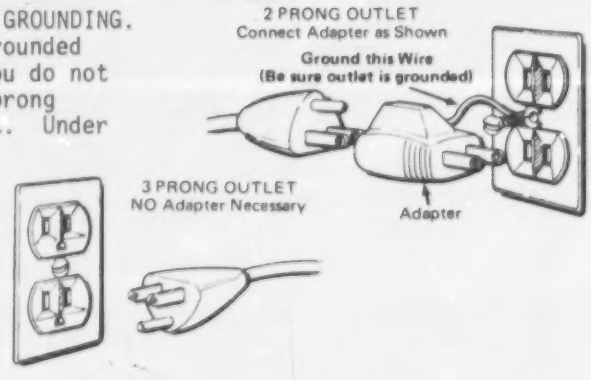
1. Did he check the outlet to be used for proper grounding? _____
2. Did he check the outlet for a two or three cavity receptacle? _____
3. Did he check the power tool cord for being a 3-wire cord with a c-prong grounding plug? _____
4. Did he check the extension for having three wires and a 3-prong plug at the other end? _____
5. Did he check the cord for being large enough to carry the current to the tool without too great a drop in voltage? _____
6. Did he ground the tool correctly? _____
7. Did he make a sold and tight connection? _____
8. Did he inspect the area where the tool is to be used for dampness? _____
9. Have the student describe the proper clothing to be worn when working in the rain and using a power tool.
10. Does he know of two items that if touched while operatingaa faulty electrical tool may provide a dangerous ground and potential heart stoppage?
    1. _____
    2. _____

An undersize extension cord will cause a serious drop in voltage when tool is under load. Loss of power and damage to the motor through over-heating may result. The distance from the outlet governs the gauge required.

Length (115V)	Extension Cord Wire Gage (B.&S.)	Length (220V)
25 ft	14	50 ft
50 ft	12	100 ft
75 ft	10	150 ft
100 ft	8	200 ft
200 ft	6	400 ft
300 ft	4	600 ft
400 ft	4	800 ft

Extension Cords: A two wire extension is unsafe, since it has no ground circuit. When using an extension cord, be sure to use a three-wire cord heavy enough to carry the current your tool will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. The table at right shows the correct size to use depending on cord length and nameplate amperage rating. If in doubt, use the next heavier gage. NOTE: The smaller the gage number, the heavier the cord.

Grounding Instructions: IMPORTANCE OF PROPER GROUNDING. Your tool and power source must be properly grounded for protection against electric shocks. If you do not have a three-cavity receptacle for the three-prong plug supplied, attach an adapter to the outlet. Under no circumstances remove the grounding prong from the three-prong plug to accomodate a two-hole outlet. If in doubt about the grounding of your power source, be sure to consult a licensed electrician.



UNIT 2: TOOLS

TOPIC: Powder-actuated Tools

LESSON OBJECTIVES:
1. To learn the uses of and the safety rules of powder-actuated tools.
2. The carpenter must be State certified before using powder-actuated tools.

REFERENCES:
1. Carpentry Apprentice Training Course, U. B. of C.
2. State Safety Requirements for Explosive-actuated Fastening Tools
3. Manufacturers' brochures, as available.

VISUAL AIDS:
Manufacturer's representative to present models, demonstration, and give the State test.

STUDY ASSIGNMENT:
1. U. B. of C., Unit 1, p. 47
2. State Safety Standards, Powder-actuated Tools

IMPORTANT STUDY POINTS:
1. Be aware of the accidents that can happen and learn the ways to prevent them.
2. Understand that a powder-actuated tool is a firearm and must be so treated.

WORK ASSIGNMENT:
1. List several makes of powder-actuated tools.
2. List places where tools are not to be used.
3. How do you know what size "charge" to use?
4. How close may other people be to the operator?
5. How may you become certified to operate a powder-actuated tool?
6. Is it safe to drive a "pin" into a plastered wall? Why?
7. What indication should be displayed when using powder-actuated tools?

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT MATERIALS

TOPIC: Wood

LESSON OBJECTIVES:

In this lesson the apprentice will learn more about the materials that are so essential to the carpenter. The broader the knowledge of wood, the more success the craftsman will have in his chosen field.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner

STUDY ASSIGNMENT:

U. B. of C., Unit 1, Part V, pp. 117-123
Modern Carpentry, Unit IV, pp. 53-70
Western and Wood Lumber Standards Reference Brochure

IMPORTANT STUDY POINTS:

1. Learn the standard sizes of lumber.
2. Be able to identify the grades of lumber.
3. Learn where to use various woods.
4. Be able to recognize various woods by color, scent, and other characteristics.
5. Pay particular attention to characteristics that determine the weight and strength of wood.

WORK ASSIGNMENTS:

Classroom:

1. Name ten commercial softwoods used in the United States.
2. Name ten commercial hardwoods used in the United States.
3. Give nominal and actual sizes of 1" common boards from 4" to 12" widths.
4. Give nominal and actual sizes of timbers from 4" to 8" thick and 6" to 10" wide.
5. Define strips, boards, and dimensional lumber.
6. Alaska cedar is often called _____.
7. There are _____species of hemlock in North America.
8. In the Northwest _____is the most widely used lumber.
9. _____has been used more widely than any other lumber in all classes of structures.
10. _____leaved trees are seldom used for structural work.
11. Draw cross-section view of the following:
    a. Bevel siding
    b. Flooring C. M. (center matched)
    c. Shiplap
    d. Drop siding C and E-V (Center and E V'd)
    e. Ceiling C. B. (center bead)

WORK ASSIGNMENTS: (continued)

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 3: MATERIALS

TOPIC: Lumber (With Board Measure)

LESSON OBJECTIVES:
To teach apprentice to become familiar with all types of lumber.

REFERENCES:
Heavy Timber Construction Details - A.I.A. File #19B
Douglas Fir (use book) West Coast Lumberman's Association
Western Wood Products - Complete manual
Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner

STUDY ASSIGNMENT:
Mathematics for Carpentry, U.B.C. Material Use & Quantities, p. 63
U.B. of C., Unit 1, Part V, pp. 117-126
Modern Carpentry, page 61

IMPORTANT STUDY POINTS:
1. Learn the various structural uses of lumber.
2. Become familiar with lumber grading standards.
3. Structural grades.
4. Architectural grades.

WORK ASSIGNMENTS:

Classroom:
1. Assigned problems in material quantities.
2. List the grades of lumber and their general usage in construction.

Lab:

Test:

INTRODUCTION OF NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 3: MATERIALS

TOPIC: Lumber: Substitutes - Plastics, metals, etc.

LESSON OBJECTIVES:
To familiarize the apprentice with the various applications of materials as a substitute for wood.

REFERENCES:
Drywall Construction Handbook- U.S. Gypsum (Page 160)

VISUAL AIDS:
U.B. of C. Slide series on the Use of Metal Studs

STUDY ASSIGNMENT:
U.B. of C., Unit 1, pp. 133-134
Modern Carpentry, pp. 66/67/69

IMPORTANT STUDY POINTS:

1. Substitution of metal and metal-wood products for joist structural systems. Modern Carpentry (pp. 66)
2. Modular wall sections. Modern Carpentry - Unit 21
3. Siding and paneling. Modern Carpentry (pp. 266-274)
4. Various methods of fastening. U.B.C. Unit I (pp. 140-144)
   Modern Carpentry (pp. 67, 68, 69)

WORK ASSIGNMENTS:

Classroom:

1. List the various products which are used in construction to take the place of wood and their application.
2. Name the tools used in the installation of these various products.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 3: MATERIAL

TOPIC: Plywood, Paneling, and Laminates

LESSON OBJECTIVES:

To give the apprentice an understanding of how plywood can be used in the carpentry field.

REFERENCES:

American Plywood Association Publications
Modern Carpentry, Wagner
Carpentry Apprentice Training Course, U. B. of C.
American Plywood Association-Manufactures brochures and manuals A1A 19F

VISUAL AIDS:

Miracle in Wood by A.P.A.
Tamap Roof Sheathing by A.P.A.

STUDY ASSIGNMENT:

U.B. of C. Unit I, Part V, pages 127-131
Modern Carpentry, pp. 60-64, 132, 267-271, 323, 340, 397, 462

IMPORTANT STUDY POINTS:

1. How plywood is used structurally.
2. How plywood is used decoratively.
3. How plywood is graded.
4. Learn difference between interior and exterior grades.
5. Become familiar with all types of laminated materials used in the industry.
6. Plywood sidings used as decorative paneling.

WORK ASSIGNMENTS:

Classroom:

1. List the different grades of plywoods and their proper uses and fastenings.
2. List various types of laminates. Define the various methods of applications of plywoods, panelings, and other laminates.

Lab:

Test:

INTRODUCTION:

MATERIAL LIST FOR NEXT LESSON:

UNIT 3: MATERIALS

TOPIC: Concrete: Use and Placement

LESSON OBJECTIVES:

To familiarize the apprentice with the various mixes of concrete, the proper handling, and placement; and its uses.

REFERENCES:

Concrete Technology by Portland Cement Association, Pages 139-147, 159-167
Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner

VISUAL AIDS:

How to Place, Finish, Cure Quality Concrete by P.C.A. Film - 32 minutes.

STUDY ASSIGNMENT:

U.B. of C., Unit II and X, pages 30-32, 42-45.
Modern Carpentry by Wagner, Unit VI, pages 87-108.
Mathematics for Carpentry by U.B. of C., pages 51-54.

IMPORTANT STUDY POINTS:

1. Learn the materials used in concrete.
2. Become aware of the effects of improper handling and placement of concrete.
3. Additives, mixtures, and their purposes and effects.
4. Calculations of concrete quantities.
5. Various uses for concrete.

WORK ASSIGNMENTS:

Classroom:

1. Explain the method of determining the proper slump of concrete.
2. What is the effect of additive mixture in concrete?
3. Calculate the amount of concrete needed to pour the foundation in the house shown in Unit V of Modern Carpentry by Wagner.
4. What is the purpose of control joints?
5. What are the purposes of the four main ingredients in concrete?
6. Explain how the following variables influence the properties of concrete:
   a. Water cement ratio
   b. Aggregate grading and maximum size
   c. Air entrainment

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 3: MATERIALS

TOPIC: Adhesives and Fasteners: Part I

LESSON OBJECTIVES:

Adhesives are so important to the carpenter that he should be properly informed on how they are used and what they will do for his work. This lesson will familiarize the apprentice with their application and function.

REFERENCES:

Manufacturers Manuals on Adhesives
Drywall Construction Handbook by U.S. Gypsum
A.P.A. Publications
Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner

STUDY ASSIGNMENT:

U. B. of C., Unit 1, Part V, p. 132
Modern Carpentry, pp. 68-69.
Drywall Handbook, pp. 56, 76-77.

IMPORTANT STUDY POINTS:

1. Learn the principal kinds of glue used today.
2. Learn why some types of glue are better than others in specific cases.
3. Familiarize yourself with the contents of different kinds of glues.
4. Be able to handle glue so it won't stain your work.
5. Know the setting time and conditions that will make the best glue job.
6. Know how to handle glue with the least amount of waste and mess.

WORK ASSIGNMENTS:

Classroom:

1. Name the different types of adhesives.
2. Explain the advantages and disadvantages of the various types of adhesives.
3. Where would these various adhesives properly be used?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 3: MATERIALS

TOPIC: Adhesives and Fasteners: Part II

LESSON OBJECTIVES:

To acquaint the apprentice with the many types of metal fasteners and their uses in the building trade today.

REFERENCES:

Architectural Graphic Standards, 6th Edition
Manufacturers Brochures and Manuals
Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner

STUDY ASSIGNMENT:

Architectural Graphic Standards, 6th Edition, pp. 190-197, 226-227
Manufacturers Brochures and Manuals, page 555
U. B. of C., Unit 1, Part V, page 132
Modern Carpentry, pp. 68-69

IMPORTANT STUDY POINTS:

1. Learn the classifications of metal fasteners in carpentry work.
2. Learn the various coatings and treatments applied to steel nails to increase their holding power.
3. Familiarize yourself with the sizes of nails most commonly used on the job.
4. Familiarize yourself with the different kinds of bolts and their uses.
5. Learn the different types of screws, their specific uses, and how to install each.
6. Become acquainted with the common light construction fasteners.
7. Learn the different types of anchors.
8. Acquaint yourself with the builder's hardware being used today.

WORK ASSIGNMENTS:

Classroom:

1. Define the various types of metal fasteners used in the construction industry.
2. Itemize the different nail sizes and their lengths.
3. List the various bolt heads and screw heads and their purposes.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 4: SCAFFOLDS AND STAGING

TOPIC: Types of scaffolding

LESSON OBJECTIVES:

To become familiar with the various types of scaffolds used in construction work.

REFERENCES:

Safety Standards for Construction Work, State Dept. of Labor and Industries - Red Book, Refer to Index.
Modern Carpentry by Wagner
Carpentry Apprentice Training Course. U. B. of C.

STUDY ASSIGNMENT:

Modern Carpentry by Wagner, pages 445-448.
U.B. of C., Unit I, pages 17-29.
State Dept. of Labor and Industries - Red Book, Refer to Index. (Subject to change.)

IMPORTANT STUDY POINTS:

1. Learn correct names for scaffolds.

WORK ASSIGNMENTS:

Classroom:

1. Write out a description of each type of scaffold.
2. Define: bearer, ledger, brace, guard rail, toe board.
3. Why should blocks be notched to receive ledgers?
4. Why should all ledgers be level and on the same plane?
5. What are minimum requirements for a light duty scaffold?
6. Why have toeboards? Guardrails?
7. Blocks should be nailed with what kinds of nails? 1 x 6 ledgers?
8. How does an independent pole scaffold differ from a single pole scaffold?
9. How does the bracing of an independent pole scaffold differ from a single pole?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 4: SCAFFOLDS AND STAGING

TOPIC: Safety Practices in Scaffold Construction

LESSON OBJECTIVES:
To learn how to construct a safe scaffold.

REFERENCES:
Safety Standards for Construction Work, State Dept. of Labor and Industries - Red Book
Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner

STUDY ASSIGNMENT:
Modern Carpentry by Wagner, pages 445-448.
U.B. of C., Unit I, pages 17-29.
State Dept. of Labor and Industries - Red Book, Refer to Index
(Subject to change.)

IMPORTANT STUDY POINTS:
1. Constantly keep in mind why these safety measures are necessary.

WORK ASSIGNMENTS:

Classroom:
1. When are guard rails necessary.
2. Describe the construction of guard rails.
3. What safety factor is necessary?
4. Who must build scaffolds?
5. How should one get on a scaffold?
6. When materials are hoisted up a scaffold, how are they prevented from damaging the scaffold?
7. How frequently must scaffolds be attached to the building?
8. Describe type of "housekeeping" necessary on scaffold.
9. What grade of lumber must be used on a scaffold?
10. A scaffold must be able to support two 180 lb. men side by side 8 ft. off the ground. The bearers will be 4 ft. long. What size must the bearers and the post be? (Safety factor)
11. Using 1 x 8 bearers, how close must bents be?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 4: SCAFFOLDS AND STAGING

TOPIC: Ladders

LESSON OBJECTIVES:
To learn how to build and how to use a safe ladder.

REFERENCES:
Safety Standards for Construction Work, State Dept. of Labor and Industries - Refer to Index.
Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner

STUDY ASSIGNMENT:
Modern Carpentry, pp. 448-449
U.B. of C., Unit 1
State Dept. of Labor and Industries - Red Book, Refer to Index.

IMPORTANT STUDY POINTS:
1. Proper care of ladders.
2. Become familiar with hazards involved in the use of ladders.

WORK ASSIGNMENTS:

Classroom:
1. What is the maximum length of a single ladder?
2. Give the dimensions of ladders of the various lengths given.
3. A ladder is 16 ft long. How far must the base be from the wall?
4. A roof is 16 ft off the ground. How long is the ladder if the base is 8 ft from the wall?
5. Is this above or below the safety standards set by the State?
6. What is the minimum width for the base of a 72 inch ladder?
7. How much must this width be increased for each foot of length?
8. What is the maximum distance between rungs?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 5: BASIC BLUEPRINT AND PLOT LAYOUT

TOPIC: Trade Terms

LESSON OBJECTIVES:

To provide the apprentice with the technical language of the trade so he may be able to understand drawings and instructions.

REFERENCES:

Modern Carpentry by Wagner
Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:

Be very mindful of diagrams in Unit II of the U. B. of C. course.

STUDY ASSIGNMENT:

The apprentice shall refer continually to the above reference throughout this course.
Modern Carpentry, pp. 89-109 and 43-51.
Modern Carpentry, Glossary of terms, pp. 469-472.

IMPORTANT STUDY POINTS:

WORK ASSIGNMENTS:

Classroom:

1. Define the following terms:
   a. footing
   b. whaler or waler
   c. batterboard
   d. anchor bolt
   e. rough grade
   f. finish grade
   g. leveling rod
   h. surveyors level
   i. hub
   j. survey point
   k. datum point

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 5: BASIC BLUEPRINT AND PLOT LAYOUT

TOPIC: Basic Blueprint Reading: Part I

LESSON OBJECTIVES:

To acquaint the apprentice with basic information that should be on plans and the importance of planning.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry by Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit X, Blueprint sheets in back of book.
Modern Carpentry, pp. 71-83.

IMPORTANT STUDY POINTS:

What determines the size of doors?
What determines the height of ceilings?
What determines the way doors swing?

WORK ASSIGMENTS:

Classroom:

Lab:

Make simple drawing of 2-bedroom floor plan to 1/4" 1' scale, showing door and window sizes, also direction of swing of doors, and any other information that you think is necessary.

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 5: BASIC BLUEPRINT AND PLOT LAYOUT

TOPIC: Basic Blueprint Reading: Part II

LESSON OBJECTIVES:

To acquaint the apprentice with the basic information that should be on plans and the importance of planning.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry by Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit X, Blueprint sheets in back of book.
Modern Carpentry, pp. 71-83.

IMPORTANT STUDY POINTS:

WORK ASSIGNMENTS:

Classroom:

In 150 words or more tell why you think a plan is vital to a construction project.

Lab.

Make a list of symbols that might be found on a plan. Make symbol drawings used in building.

Test:

Complete test on page 85 of Modern Carpentry.

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 5: BASIC BLUEPRINT AND PLOT LAYOUT

TOPIC: Location of Property Lines, Batter Boards, and Leveling Devices: Part I

LESSON OBJECTIVES:

To help the apprentice understand methods of locating property lines in order that the building may be located in the correct position with respect to lot lines and grades.

REFERENCES:

Modern Carpentry by Wagner.
Carpentry Apprentice Training Course by U. B. of C.

VISUAL AIDS:

Transparencies

STUDY ASSIGNMENT:

U. B. of C., Unit II, pp. 1-8.
Modern Carpentry by Wagner, Units 5 and 6, pages 72-80.

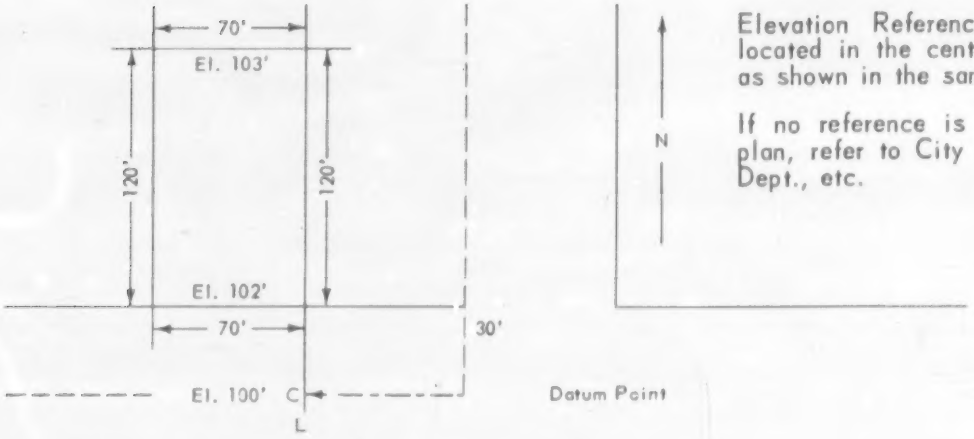
IMPORTANT STUDY POINTS:

1. Be able to determine North point.
2. Know how to locate surveyer's hubs and datum points.
3. Learn how to tape distrance from lot line to line.
4. Learn how to tape distance as shown on plot plan from datum point to plot line.
5. Be able to determine elevation reference point as shown on plot plan.
6. Be able to determine elevation of house with respect to reference point.

WORK ASSIGNMENTS:

1. Prepare a sketch (not a scale) showing the plot plan of your own home: Locate North point, locate hub or datum point, give dimension from datum point to lot line, give dimension width across front of lot, and give dimension depth of lot.

SAMPLE ONLY



Elevation References are usually located in the center of the street as shown in the sample.

If no reference is shown on plot plan, refer to City Engineer, Water Dept., etc.

UNIT 5: BASIC BLUEPRINT AND PLOT LAYOUT

TOPIC: Location of Property Lines, Batter Boards, and Leveling Devices: Part II

LESSON OBJECTIVES:

To teach the apprentice the use and importance of batter boards in the layout of buildings.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner

VISUAL AIDS:

Transparencies

STUDY ASSIGNMENT:

U. B. of C., Unit II, pp. 1-8.
Modern Carpentry, Units 5 and 6.

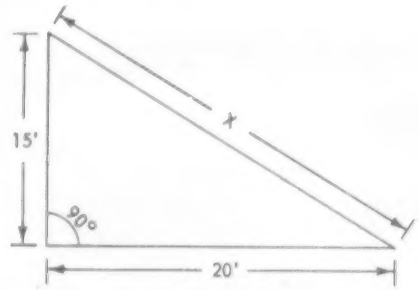
IMPORTANT STUDY POINTS:

1. Be able to locate house in relation to lot lines.
2. Know how to layout a right angle with the 3-4-5 method.
3. Learn how to locate batter boards where they will be undisturbed during construction of foundation, bearing in mind that mechanical equipment may be used.
4. Be able to construct batter boards so that they will easily withstand pull of lines.
5. Become familiar with the method of checking squareness of building by diagonal method.

WORK ASSIGNMENTS:

1. Make a sketch of a good braced corner batter board.
2. How do you note the final location of the building lines?
3. In the following sketch, what is the dimension of "x."
4. Why should batter boards be held to the same grade?

Test:



INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 5: BASIC BLUEPRINT AND PLOT LAYOUT

TOPIC: Location of Property Lines, Batter Boards, and Leveling Devices; Part III

LESSON OBJECTIVES:
To teach the apprentice the types of leveling devices and their uses.

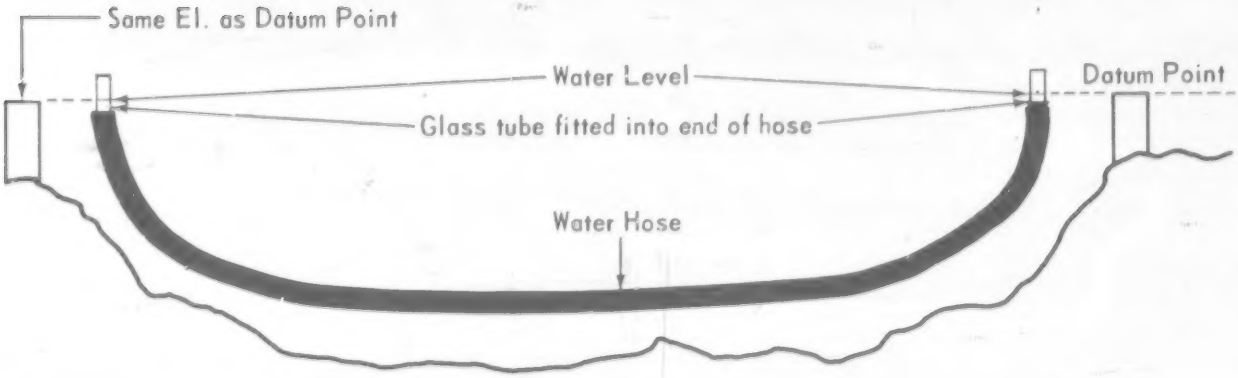
REFERENCES:
Modern Carpentry by Wagner
Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:
Transparencies

STUDY ASSIGNMENT:
Modern Carpentry, Unit III, pp. 87-93.
U. B. of C., Unit II, pp. 11-17.

IMPORTANT STUDY POINTS:
1. Learn how to check the accuracy of a hand level.
2. Be able to locate a builder's level correctly.
3. Pay particular attention to leveling the foundation with relation to datum point.
4. Study the sketch below for an alternate method of leveling.

SKETCH OF A WATER LEVEL
(The hose is filled with water to the level noted.)



5. Describe the principle of water level.

WORK ASSIGNMENT:

Classroom:

1. Describe how to check a hand level.
2. Describe how to locate a builder's level.
3. State why the level is so located.

Lab.

Test:

INTRODUCTION TO NEXT LESSON

MATERIAL LIST FOR NEXT LESSON:

UNIT 6: FOUNDATIONS AND SLABS

TOPIC: Types of Footings and Piers

LESSON OBJECTIVES:

To teach the apprentice the types of footings and piers so that he may better appreciate the importance of correct forming of same.

REFERENCES:

Modern Carpentry, Wagner
Carpentry Apprentice Training Course, U. B. of C.
Architectural Graphic Standards, Ramsey and Sleeper
Uniform Building Code

VISUAL AIDS:

Transparencies

STUDY ASSIGNMENT:

Modern Carpentry, pp. 90-92
U. B. of C., Unit II, pp. 29-30
Architectural Graphic Standards
6th Edition, page 90
5th Edition, pp. 3-5

WORK ASSIGNMENT:

Classroom:

1. How deep must you dig your fottings in the following cities: Chicago, Illinois; Seattle, Washington; Boston, Massachusetts; Jacksonville, Florida; and Milwaukee, Wisconsin?

Lab:

1. Draw a section through a footing requiring no reinforcement.
2. Draw a section through the same footing and show how concrete can be saved and still carry the same load.

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 6: FOUNDATIONS AND SLABS

TOPIC: Foundation Forms

LESSON OBJECTIVES:
To teach the apprentice form construction and how forms are held in place.

REFERENCES:
Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner

VISUAL AIDS:
Transparencies

STUDY ASSIGNMENT:
U. B. of C., Unit II, pp. 18-31.
Modern Caprentry, pp. 98-106

IMPORTANT STUDY POINTS:
1. Learn the difference between panel or sectional and built-on job forms.
2. Plumbing and Aligning
3. Learn the methods of bracing forms.

WORK ASSIGNMENTS:
1. What type of form would be used on a project constructing many houses?
2. What type of form would usually be employed on a custom-built house?
3. Draw a section through a basement wall 7' high and 8" thick, showing cross ties, whalers, and bracing.
4. If a smooth concrete wall is specified, what type of form material would you use?
5. Why are tandem stakes sometimes used in bracing?
6. What are kickers and why are they used?
7. What determines the angle of a stake?
8. Why should finish nails be used in form work?
9. What should be done to facilitate stripping?

Lab:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 6: FOUNDATIONS AND SLABS

TOPIC: Form Ties, Fasteners, and Accessories

LESSON OBJECTIVES:

To teach the apprentice the use of different types of form ties and devices, the use of bucks and blockouts

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner
P. H. Bowman Co. catalog
Burke Concrete Construction catalog

VISUAL AIDS

Transparencies

STUDY ASSIGNMENTS:

U. B. of C., Unit II, pp. 33-39, 55-56.
Modern Carpentry, pp. 95-99.

IMPORTANT STUDY POINTS:

1. Be able to explain the purpose of a buck, used in concrete forms.
2. Know when it is necessary to install bucks.
3. Be able to identify and describe the different types of anchors.
4. Note the method used to hold anchor bolts in place while concrete is being poured.
5. Learn why anchor bolts are necessary.
6. Study snap-tie spacing chart.

WORK ASSIGNMENT:

Classroom:

1. Sketch a buck in place to leave an opening 3'o" wide x 4'0" high in a 8" wall.
2. When are bucks and blockouts put in place and how are they constructed to facilitate stripping?
3. Why are anchor bolts used?
4. List 5 types of ties or fasteners suitable for wall forming.

Lab;

1. Sketch a section through a foundation showing the installations of anchor bolts according to Uniform Building Code.
2. Make a drawing of wall section showing position of wall ties, whaler, corner ties and bracing.

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 6: FOUNDATIONS AND SLABS

TOPIC: Slabs, Screeds, and Hardware

LESSON OBJECTIVES:

Familiarize the apprentice with screeding for slabs with hardware placing, screed holding devices, and thickness of concrete.

REFERENCES:

Modern Carpentry, Wagner, pp. 105-110
Carpentry Apprentice Training Course, U. B. of C.
Burke's Concrete Construction catalog

VISUAL AIDS:

Transparencies

STUDY ASSIGNMENT:

Modern Carpentry, pp. 105-110
U. B. of C., Unit X, p. 25

IMPORTANT STUDY POINTS:

1. Know how to use adjustable screed supports.
2. Determine how to place them.
3. Determine the thickness of slabs at bearing points.
4. Learn methods of damp proofing ground slabs.
5. Be able to explain Hydrostatic Pressure.

WORK ASSIGNMENTS:

Classroom: Draw details of slab with footings, screeds, keyways, and blockouts. Show methods of damp proofing and water seals, also show how to treat bearing points. Draw a cross section of slab and foundation wall, showing placement of drain tile.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 6: FOUNDATIONS AND SLABS

TOPIC: Shoring, Bracing, and Stripping

LESSON OBJECTIVES:

To teach the apprentice the correct methods of bracing, shoring and stripping, cleaning and care of material.

REFERENCES:

Modern Carpentry, Wagner
Carpentry Apprentice Training Course, U. B. of C.
Construction Safety Standards, (Red Book), State Dept. of Labor and Industries

VISUAL AIDS:

Safety Film by State Dept. of Labor and Industries
Transparencies

STUDY ASSIGNMENT:

Modern Caprentry, Unit 6
U. B. of C., p. 59
Construction Safety Standards (Red Book)

IMPORTANT STUDY POINTS:

1. Learn how deep a ditch can be without shoring.
2. Learn types of braces.
3. Learn the types, grades, and materials used for sheet piling.
4. Learn the importance of building forms that can be stripped without destroying the material.
5. Pan shoring for multiple story building - vertical.

WORK ASSIGNMENTS:

Classroom:

1. What can be done in a trenching operation if shoring is to be omitted?
2. What care should be taken in cleaning and storing material? Be specific.
3. What grade of material should be used for bracing?
4. What type of material would be used to construct a cofferdam?

Lab:

1. Draw an end view of a ditch 8' deep showing the method of shoring.

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 6: FOUNDATIONS AND SLABS

TOPIC: Math and Test

LESSON OBJECTIVES:
To provide practical problems for the student.

REFERENCES:
Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner
Practical Problems in Math for Carpenter Trade, Delmar

VISUAL AIDS:

STUDY ASSIGNMENT:

IMPORTANT STUDY POINTS:

1. Understand what is meant by reduction.
2. Notice that one dimension is used to obtain length; it takes two dimensions to obtain area; it takes three dimensions to obtain volume.
3. Always be careful that you place the proper dimension with your test answers from now on. The dimension is part of the number. If you mean 10 cubic yards, you must not write 10 yards or 10.

WORK ASSIGNMENTS:
Classroom:

Lab:

Test:
See following page

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 6: FOUNDATIONS AND SLABS

TOPIC: TEST

1. Add: 934.2 and 00314
2. Subtract: .721 from 2.1007
3. Multiply: .004 by 101
4. Divide: .341 by 72
5. Subtract: 11/16 from 1 1/4
6. Multiply: 1 7/8 by 2/3
7. Divide: 3/4 by 1 1/2
8. What percent is 3 of 4?
9. Ten percent of a number is 7. What is the number?
10. John's share is 1/4. Bill's share is 3/4. What is the ratio of Bill's share to John's?
11. Suppose that mortar contained two shovels of lime for every twelve shovels of sand and one shovel of cement. How much lime is needed for sixty shovels of sand?
12. A number times itself equals 169. What is the number?
13. If 3/4" of rain fell on a piece of land 100 feet long and 48 feet wide, how many cubic feet of water would that be?
14. How many inches are there in one-half mile? In ten yards?
15. A box is 4 feet by 2 feet by 2 feet. What is the volume in cubic inches.
16. A cylinder is 10 feet long and 9 feet in diameter. What is the volume?
17. A rectangle has an area of 48 square feet. One side is 6 feet long. What is the length of the other?
18. A circle has an area of 314.16 square feet. What is the radius?

Name _____ Date _____ Score _____

UNIT 6: FOUNDATIONS AND SLABS

TOPIC: Review and Evaluation

LESSON OBJECTIVES:

REFERENCES:

VISUAL AIDS:

STUDY ASSIGNMENT:

IMPORTANT STUDY POINTS:

WORK ASSIGNMENTS:
Constructively evaluate each unit separately with a short paragraph as to what it meant to you. What improvement can you suggest to improve each unit?

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

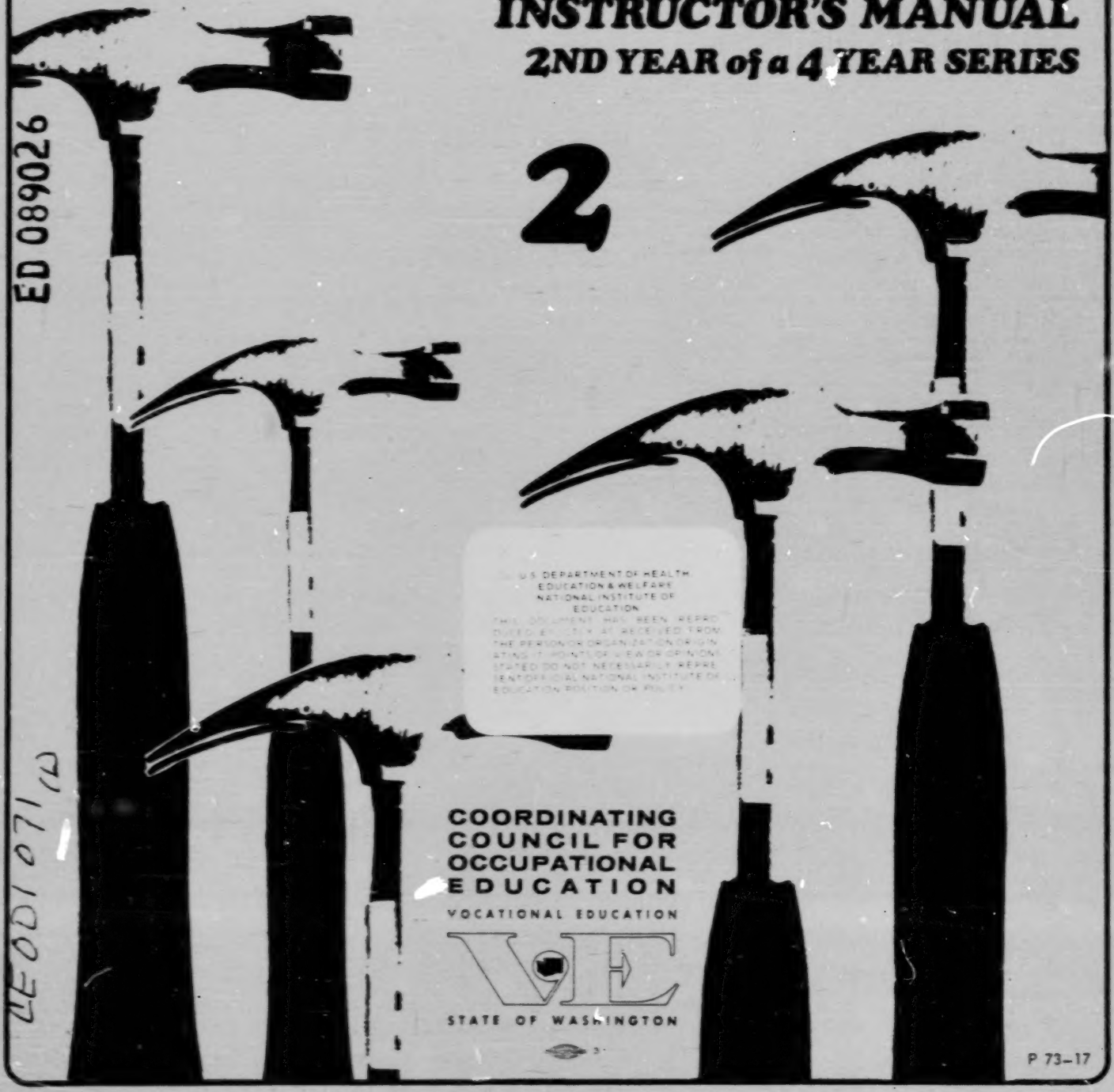
CARPENTRY

Apprentice Related Training

INSTRUCTOR'S MANUAL

2ND YEAR of a 4 YEAR SERIES

2



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STATE OF WASHINGTON

P 73-17

FOREWORD

The Washington State Coordinating Council for Occupational Education, Trade and Industrial Section, is one of the agencies responsible for encouraging the development and promotion of the apprentice training program in this state and, under existing state law, is responsible in cooperation with local schools for providing technical and related instruction for all registered apprentices.

This course of related study in the Carpentry trade is designed to meet the need for organized study in the various technical aspects necessary for an apprentice to become a well-trained journeyman. The apprentice who works hard at learning his trade on-the-job, and who masters the related instructional material included in these lessons will master his trade and become a real asset to his trade and his community.

Arthur A. Binnie
Director and Executive Officer
Coordinating Council for Occupational Education

ACKNOWLEDGMENTS

The Washington State Coordinating Council for Occupational Education, Trade and Industrial Section, recognizes the valuable contribution made by the Revision Committee representing the Carpentry trade in reviewing, revising, and updating the apprentice-related instruction material contained in this unit of the four year related instruction curriculum.

The following members are actively engaged in the trade and each made a substantial contribution to the project:

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We further wish to acknowledge the encouragement and support given by members and staff of the Washington State Apprenticeship Council, the Washington State Council of Carpenters, representatives of the United Brotherhood of Carpenters and Joiners of America, representatives of the Associated General Contractors and of the Master Homebuilders.

Special thanks are extended to Coordinators Bob Buckingham, Leonard Liebelt, and Mack Johnson and to Mr. Earle Bennett, Project Director, who kept us all working to complete the project; to Mr. Steve Bishopp, Program Specialist, CCOE, who designed the covers and handled the printing arrangements; and to Mrs. Gayle DiGiovanni, T & I Secretary, who spent many hours in typing and other support work.

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INTRODUCTION

The Carpentry Apprentice Curriculum Revision Committee started work on September 25, 1971, and worked diligently on the revision of the four-year related training course.

Outmoded trade practices were omitted. New trade trends were included and time adjustments were made to make the practical use of the 144 hours per year of apprentice related training time.

New decimal page numbering is being used to facilitate updating the manual in the future without the necessity of reprinting and renumbering the entire manual.

An example of the page numbering is as follows:

Unit Number	Lesson Number	Page Number
08	.13	.01

Hence, the above page number will read:

08 for Unit 8: Roof Framing
.13 for the thirteenth lesson of the second year
.01 is the page number for the first page of that lesson

Note:

A. Lessons for this second year manual are numbered 07 through 09.

B. Page numbers are for each lesson, 1 through the number of pages for that lesson.

C. It is recommended that copies of the students' information sheets will be made available in separate printing for use as handouts to each apprentice in training classes.

D. The complete instructor's manual is intended for the use of instructors only.

REFERENCES

Carpentry Apprentice Training Course, United Brotherhood of Carpenters and Joiners of America.

Safety Standards for Construction Work, (Red Book) Washington State Department of Labor and Industries

Modern Carpentry, by Wagner, Goodhert-Willcox, So. Holland, Ill.

Safety Requirements for Explosive-Actuated Fastening Tools, Washington State Department of Labor and Industries

Douglas Fir Use Book, West Coast Lumberman's Association

Heavy Timber Construction Details, American Institute of Architects, File 19b

Drywall Construction Handbook, U. S. Gypsum Company

Concrete Technology, Portland Cement Association

Architectural Graphic Standards, Ramsey and Sleeper

Practical Problems in Math for the Carpenter Trade, Delmar Publishers

VISUAL AIDS

Transparencies as available, U. B. of C.

Slide Series, Use of Metal Studs, U. B. of C.

Film (32 min.) How to Place, Finish, and Cure Quality Concrete, Portland Cement Association

Film Safety in the Construction Industry, Washington State Department of Labor and Industries

Film Miracle in Wood, American Plywood Assoc., 1119 A St., Tacoma, 98401

Film Tamap Roof Sheathing, American Plywood Assoc., 1119 A St., Tacoma, 98401

COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION

OLYMPIA, WASHINGTON

LEGISLATION AFFECTING WORKERS

REVISED TO FEBRUARY 1, 1971

In recent years many laws have been passed on both federal and state levels that directly affect the working man, his family and dependents. In the apprentice training time available we cannot go into detail about all this legislation. In this lesson the highlights of the most important laws will be discussed. If an apprentice wishes to seek further detailed knowledge about any of them, he should contact his public library, one of the local offices indicated, his employer or his union. Included in this lesson are industrial insurance, unemployment compensation, old age and survivor's insurance, and wages and hours laws.

A. INDUSTRIAL INSURANCE (WORKMEN'S COMPENSATION ACT)

One of the purposes of the Workmen's Compensation Act is to afford to the worker certain and speedy relief in case of industrial accident. The purpose of this lesson is to reduce the law to simple and understandable terms, and to assist in promptly obtaining all the benefits of the Workmen's Compensation Act of the State of Washington. This information is general in nature, and is to serve as a guide in the situations which are most likely to arise under the Act.

1. Workers covered: Generally speaking, all employees engaged in manual labor are automatically covered. Deductions which are automatically made from salary or wages for medical aid (this should not be confused with health coverage as it requires the consent of employee) are proof of coverage by Workmen's Compensation Act. However, employees may be covered without deductions for medical aid being taken from their salary or wages if the employer chooses to absorb these premiums rather than charge them to the employee.

With the approval of their employer, employees who are not otherwise covered may obtain coverage. Such coverage must, of course, be obtained prior to the injury for which a claim is to be made. Forms and information may be obtained from any Service Location of the State Department of Labor and Industries or from the main office in Olympia.

2. How the Workmen's Compensation Act is financed: The premiums for medical benefits, called medical aid premiums, are paid one-half by the employer and one-half by the employee through payroll deductions. It is not unlawful, however, for the employer to absorb the entire medical aid premium and not charge any part of it to the employee.

The premiums for compensation benefits, including monthly compensation for loss of time from work and all disability awards and pensions (called industrial insurance premiums) are paid entirely by the employer. It is unlawful for the employer to charge or deduct from wages or salary any part of such premiums.

Rights to compensation and medical care are not affected by any other insurance which the employee may have. Employees can accept any benefits to which they may be entitled under any other type of insurance and in addition thereto be entitled to receive full industrial insurance benefits from the Department of Labor and Industries.

Payment cannot be reached by creditors through garnishment, execution or attachment until such time as the warrant covering such payment has actually been delivered to the employee by the Department of Labor and Industries.

3. Industrial insurance benefits:

a. Medical benefits include doctor, hospital and nursing care, including x-rays and drugs prescribed by your attending physician, glasses, dental repairs and dentures, artificial appliances, eyes and limbs, where necessary because of an industrial injury or occupational disease.

b. Compensation for loss of time from work is not paid for the day of injury or the three days following said injury, unles the disability continues for 30 or more consecutive calendar days from date of injury. If employer continues to pay full wages or salary, by other than vacation pay, the employee is not entitled to receive monthly time loss compensation. If employee returns to work before his claim is closed and is unable to earn full previous wage or salary due to injury, he will receive the proportionate share of monthly time loss compensation. Scheduled rate of compensation payments for injuries occurring on or after August 6, 1965, are as follows:

SINGLE	$ 185.00
MARRIED	215.00
MARRIED with ONE child under 18 years	252.00
MARRIED with TWO children under 18 years	283.00
MARRIED with THREE children under 18 years	306.00
MARRIED with FOUR children under 18 years	329.00
MARRIED with FIVE children under 18 years	352.00

Payment of monthly time loss compensation has no relationship to whetherthe claimant is receiving vocational rehabilitation services, but is allowed only when his condition, due to his injury, prevents him from working and is not yet medically fixed. Rate of compensation is governed by the law in effect on the day of the injury.

c. Compensation for permanent partial disability: Lump sum award for injury which causes some permanent partial disability but which does not prevent worker from resuming some gainful occupation. Amount of compensation to which employee is entitled is based on certain schedules which are set forth in the law. Awards vary from $270.00 for loss of little finger at distal joint to $15,000.00 for loss of arm or leg at shoulder of hip joint.

d. Compensation for permanent total disability: Provision is made for a pension to a totally permanently disabled worker (added payments for children under 18 years) and pension thereafter to his widow. A total permanently disabled worker is one whose injury completely and permanently disables the worker from regularly following a gainful occupation. A single worker's monthly compensation is $185.00, a married worker's $215.00, a widow with or without minor children $140.00, the youngest child $37.00, next youngest $31.00, each additional child $23.00 (for a maximum of five children.)

e. Compensation for fatal injuries: Provision is made for a pension for widow or invalid widower and for minor children of a worker killed in an industrial accident. The widow or invalid widower would receive $140.00 per month, the youngest child $37.00, the next youngest child $31.00, each additional child $23.00, with maximum for the family $277.00.

4. Ten commandments for injured workmen:

1. Immediately upon the occurrence of an injury give notice of such injury, regardless of how trivial it may appear to be. Report to the person designated by the employer to receive notice of accidents.

2. As soon as employee is physically able he should fill out Report of Accident (or Report of Occupational Disease), at the doctor's office of the hospital. This report should be left with the doctor.

3. After employee has completed his part of the Report of Accident and left it with the doctor, he should check to see that the report is completed by the doctor and mailed to the employer.

4. After four weeks from the signing of the Report of Accident, if some word or acknowledgement has not been received, check with the employer to see if report was received by him from the doctor, acted upon, and turned in to the Department of Labor and Industries.

5. After six weeks, if still no acknowledgment has been received, advise the Department of Labor and Industries through a Service Location or by writing directly to the main office in Olympia, giving name and address of employer, the doctor, nature of injury, and the date of injury. No action can be taken until report is filed.

6. As soon as possible employee should get the names and addresses of all witnesses who saw the accident or who have knowledge concerning the same and have such information available if there is an investigation of the claim.

7. While employee is off work, he will receive each month a postal card, called a "certificate of disability", containing portions to be filled in by the doctor and by the workman. This card should promptly be filled in by both doctor and employee and returned to the Department of Labor and Industries. Payment cannot be made for loss of time from work until this card is returned.

8. Read all communications from the Department of Labor and Industries and follow carefully all instructions.

9. After an award of compensation has been made to the employee (or other final action taken, such as rejection) which he believes to be incorrect or unlawful, he must apply for reconsideration within sixty days after receipt of printed order.

10. After a claim is closed, application for further compensation or treatment can be made providing that employee's condition has become worse since the closing of the claim. Such application must be filed with the Department of Labor and Industries within five years from the date of the closing order.

5. Filing limitations: A workman loses his rights, irrespective of the merits of his claim, unless he meets certain deadlines for filing necessary reports and applications with the Department of Labor and Industries. These limitations are as follows:

Time limit for filing of claim: 1 year after the day upon which the injury occurred.
Time limit for protest or request for reconsideration of an order of the Department must be received by the Department within 60 days from date of receipt of the order. This also applies to appeals to the Board of Industrial Insurance Appeals which is a separate agency composed of a representative from labor, one from management and one from the general public.
Time limit for appealing to court from the Board of Insurance Appeals final order: 30 days.
Time limit for requesting reopening of claim: 5 years

NOTE: Information regarding Industrial Insurance was taken from a pamphlet entitled: "Reference Manual Relative to Benefits Under Workmen's Compensation and Medical Aid Acts, State of Washington" and published by the Department of Labor and Industries of the State of Washington. For copies of this manual and for additional information contact any of the following Service Locations or the Department of Labor and Industries:

Aberdeen	Everett	Port Angeles	Vancouver
Bellingham	Kennewick	Seattle	Wenatchee
Bremerton	Longview	Spokane	Yakima
Ephrata	Mount Vernon	Tacoma	

B. UNEMPLOYMENT COMPENSATION

Under the Federal-State system of unemployment compensation, established under the Federal Social Security Act and the Washington State Employment Security Act, there has been developed the particular program that seems best adapted to conditions prevailing within this state. It is important that apprentices know the details of the employment security program and understand how it functions.

1. Who is covered? In the State of Washington a worker in any firm employing one person at any time is covered by the plan, unless specifically excluded such as: agricultural labor, domestic service in private homes, service for relatives, and self-employment including agents on commission.

2. How is the program financed? This state finances unemployment benefits mainly by contributions from employers on the wages of their workers. There is no tax on employees or deduction from wages. The funds collected are held for the state in the unemployment trust fund (at interest) in the United States Treasury. From this fund, money is drawn to pay benefits. The maximum rate for employer contribution is 2.7% of wages paid, limited to the first $4,200.00 earned by each worker within a calendar year. Congress makes appropriations for the cost of administration of this Federal-State program.

3. How does one qualify for benefits?

a. You must be unemployed to the extent that your earnings are less than your benefits would be for total unemployment.

b. You must have earned not less than $1100 in the first four of the last five completed calendar quarters prior to the quarter in which you file the initial claim for benefits. (The qualifying amount is adjusted annually.)

c. You must register for work with the Employment Service.

d. You must file a claim for benefits (by mail if necessary) and must serve one "waiting week" during which you are not employed.

e. You must be actively seeking work, be physically able to work, and immediately available for work.

f. You must report each week in person unless directed otherwise by the person taking your claim.

4. What are the benefits? The amount of your benefits is determined by your earnings during the four-quarter period mentioned in 3 b. That four-quarter period is called the base year.

5. What will cause one to become disqualified?

a. Failure to apply for available suitable work or refusal to accept suitable work without good cause disqualifies for benefits from the date of such failure or refusal and until the individual returns to work and earns an amount equal to his weekly benefit amount in each of five calendar weeks.

b. Voluntarily quitting work without good cause disqualifies for benefits for that week and for the next ten weeks.

c. Being discharged or suspended for misconduct connected with your work disqualifies for benefits for that week and for the next ten weeks.

d. Knowingly withholding a material fact or making a misrepresentation or false statement in order to obtain benefits disqualifies for benefits for that week and for an additional 26 weeks whenever a claim is filed after being thus disqualified. Criminal prosecution is also a possibility.

e. Being out of work because of labor and management disputes, generally speaking, disqualifies for benefits.

6. Can one appeal a determination of disqualification? An appeal in writing submitted within ten days of the mailing or personal delivery of a notice of disqualification, and delivered to the State Employment Security Office or a local office, will be considered first by an examiner of the department. A second appeal will be heard and determined by the Employment Security Commissioner. Following this, appeal may be made to the courts.

7. Administration. In this state unemployment compensation is administered through the Employment Security Department of the State government. Its executive officer is the Commissioner, who appoints nine members to a state advisory council (3 employers, 3 employees, 3 public). The state council shall aid the agency in formulating policy and discuss problems related to the administration of the unemployment insurance act and assure impartiality and freedom from political influence in the solution of such problems. All employees of the department, except policy-making heads, are appointed on a merit basis.

Information taken from:

Comparison of State Unemployment Insurance Laws as of July 6, 1969, published by the United States Department of Labor, Bureau of Unemployment Security, and

Unemployment Compensation Information for Claimants SF 8139 (Rev. 11-70)

C. SOCIAL SECURITY (Old Age Survivors Insurance)

The social security act was established by Congress in 1935, at which time the Social Security Board consisting of three members nominated by the President and confirmed by the Senate was established to administer the program of old age and survivors insurance for industrial and commercial workers and their dependents.

The President's reorganization plan No. 2, effective July 6, 1946, abolished the three-member Social Security Board and transferred its functions, as well as certain other federal functions, to the Federal Security Administrator, head of the Federal Security Agency, of which the Social Security Board was a part. On that date the Social Security Administration was established, with the former Chairman of the Board as Commissioner for Social Security.

On April 11, 1953, the Department of Health, Education and Welfare was established with the Social Security Administration as a component of that department. Within the Social Security Administration are four bureaus: Bureau of Old-Age and Survivors Insurance; Bureau of Public Assistance; Children's Bureau; Bureau of Federal Credit Unions.

The Social Security Act has been amended several times since its original passage. As a result, monthly benefits may be paid to the families of retired, disabled, or deceased workers, as well as to the retired or disabled person himself. The benefit amounts have been materially increased over the years until now the minimum benefit amount is $64.00 and the maximum is $434.40 a month on any one social security account. The benefit amounts are subject to fluctuation and current amounts can be ascertained by inquiry at any Social Security Administration office or from their publication SSI-35. Coverage has been extended so that now over nine out of every ten persons earning a living are covered under the program. The following summary describes the old-age, survivors and disability insurance program including the amendments of 1970.

1. Benefits payable to:

a. Retired worker age 65 or woman worker age 62.

b. Wife of retired worker if she is age 62 or over, or regardless of age if entitled child under 18 or adult disabled child is present. Dependent husband* of retired worker if he is age 65 or over.

c. Widow or dependent widower,* age 62 or over, of deceased worker.

d. Children (under age 18) of retired worker, and children of deceased worker and their mother (the worker's widow, or in some cases his divorced wife) regardless of her age. Adult disabled children qualify as though they were under age 18.

e. Dependent parents,* age 65 for father, 62 for mother, or over, of deceased worker.

f. In addition, a lump sum payment upon death of an insured worker.

* Proof of dependency must, in general be filed within two years of worker's entitlement in cases of a dependent husband, and within two years of death in cases of a dependent widower or dependent parent.

2. Insured status:

a. Based on "quarters of coverage." An individual paid $50 or more of non-farm wages in a calendar quarter is credited with a quarter of coverage for the quarter. ($7800 of wages in a year automatically gives four quarters of coverage.) An individual paid $100 or more of farm wages in a year is credited with one quarter of coverage for each full $100 of such wages ($400 or more of such wages automatically gives four quarters of coverage.) An individual with creditable self-employment income in a year (in general, $400 or more) automatically receives four quarters of coverage.

b. Fully insured status gives eligibility for all benefits except dependent husband's benefits and dependent widower's benefits, which require both fully and currently insured status, and child's benefits in respect to a married woman which may be payable only if she has currently insured status. A fully insured person is one who at or after attainment of retirement age, onset of disability, or death fulfills any one of the following three alternative requirements:

1. Has 40 quarters of coverage.

2. Has at least 6 quarters of coverage and at least one quarter of coverage (acquired at any time after 1936) for every two quarters elapsing after 1950 (or age 21, if later) and before retirement age, onset of disability, or death.

3. Has a quarter of coverage in all but four of the quarters after 1954 (but not including the quarter in which he attains retirement age, becomes disabled or dies.)

Most persons who become fully insured will go under the first or second alternatives. The second alternative enables a person who attained retirement age after July 1954 to become fully insured with just six quarters of coverage acquired at any time. Elderly persons who are newly covered under the 1954 or 1956 Amendments may meet the third alternative even though not the second. The third alternative is not effective in any case for persons reaching age 65 or dying after September, 1960.

c. Currently insured status (eligible only for child, mother, and lump-sum survivor benefits; necessary for husband's and widower's benefits) requires 6 quarters of coverage within 13 quarters preceding death or entitlement to old-age benefits.

3. Primary insurance amount:

a. The primary insurance amount is the amount paid to the retired or disabled worker. It is derived from the insured person's average monthly earnings. For those now qualifying for benefits for the first time, average monthly earnings are determined by dividing all covered earnings by all months after December 31, 1936, December 31, 1950, or the last day of the year in which a person reaches age 21, if that date is later than January 1, 1951. The closing date for figuring this average monthly earnings figure is ordinarily the first day of the year in which the person becomes disabled, files his application after reaching retirement age, or dies. As many as five years of the lowest earnings can be dropped out of this computation.

b. The minimum retirement benefit is $64.00 a month and the maximum is $250.70.

c. If a woman elects to receive her benefits starting at age 62 rather than waiting until 65, her payment will be reduced by 20%.

4. Benefits Amounts for Dependents and Survivors, Relative to Worker's Primary Insurance Amount:

a. Wife or dependent husband--one-half of primary. (Wife's benefit will be reduced by 25% if she files at age 62.)
b. Widow or dependent widower--three-fourths of primary.
c. Child--one-half of primary, except that for deceased worker's family, an additional one-quarter of primary is divided among the children.
d. Dependent parent--three-fourths of primary.
e. Lump-sum death payment--three times primary, with $255 maximum.
f. Maximum family benefit is $434.40.
g. Minimum amounts payable to any survivor beneficiary where only one is receiving benefits is $38.90.
h. For examples of monthly payments beginning January 1, 1970, see pamphlet publication of the U. S. Department of Health, Education and Welfard, Social Security Administration SSI-35, May, 1970.

5. Employment permitted without suspension of benefits (Called "Work Clause" or "Retirement Test"):

A beneficiary can earn $1680 in a year in any employment, covered or noncovered, without loss of benefits. In no case, however, are benefits withheld for any month in which the beneficiary's remuneration as an employee was $140 or less and in which he rendered no substantial services in self-employment. For beneficiaries age 72 or over, there is no limitation. If a retired worker's benefit is suspended, so also are the benefits of his dependents.

6. Covered employment:

a. All employment listed below which takes place in the 48 states, the District of Columbia, Alaska, Hawaii, Puerto Rico, or the Virgin Islands, or which is performed outside the United States by American citizens employed by an American employer, (or, by election, by an American citizen employed by a foreign subsidiary of an American employer) is covered employment. Also covered, under certain conditions, is employment on American ships and aircraft outside the United States.

b. Individuals engaged in the following types of employment are covered:

1. Virtually all employees in industry and commerce, other than long-service railroad workers (the service of those who retire or die with less than ten years of railroad service is covered.)

2. Farm and nonfarm self-employed with $400 or more of net earnings from covered self-employment.

3. State and local government employees not covered by a retirement system, and those covered by a retirement system on a referendum basis in which a majority of those eligible to vote are in favor of coverage; in any event, the State must elect such coverage.

4. Nonfarm domestic workers (based on $50 in cash wages from one employer in a quarter.)

5. Farm workers, including farm domestic workers (based on $150 or more in cash wages from any one employer in a year.)

6. Ministers and members of religious orders (other than those who have taken a vow of poverty) either employed by non-profit institutions (in positions which only a minister can fill) or self-employed are covered on individual elective basis as self-employed. Other employees of non-profit institutions are covered on elective basis; employer must elect coverage, and at least two-thirds of employees must concur in coverage (then all employees concurring in coverage and all new employees are covered).

7. Federal employees who are not now covered by retirement system established by law of the United States other than a few specifically excluded small categories.

8. Definition of "employee" is broadened from strict common-law rule to include following groups as "employees"; full-time wholesale salesmen; full-time life insurance salesmen; agent-drivers and commission drivers distributing meat, vegetable or fruit products, bakery products, beverages (other than milk), or laundry or dry cleaning services; and industrial homeworkers paid at least $50 in cash during a quarter and working under specifications supplied by employer.

9. Members of the Armed Forces.

7. Wage credits for World War II and subsequent military service:

World War II veterans and those in service thereafter (including those who die in service) are given wage credits of $160 for each month of active military (including naval) service in World War II and thereafter through December, 1956, except that credit is not given if service is used for any other Federal retirement or survivor system (other than compensation or pensions payable by the Veterans Administration); additional cost is to be borne by trust fund.

8. Maximum annual wage and self-employment income for benefit and contribution purposes:

$4800 per year for 1959 and after ($4200 in 1955-58, $3600 in 1951-54 and $3000 before 1951). $6600 in 1966-67, $7800 in 1968-____.

9. Tax (or contribution) rates:

a. 2-1/4% on employer and 2-1/4% on employee through 1958, 2-1/2% for 1959, 3% for 1960-62, 3-1/2% for 1963-65, 4.2% for 1966, 4.4% for 1967-68, 4.8% for 1969-70, 5.2% for 1971-____.

b. For self-employed the rate is 1-1/2 times that for employees. Self-employment income taxed is, in general, net income from trade or business; special optional provisions based on 50% of gross income are available for farmers with low net income.

c. No provisions for authorizing appropriations from general revenues to assist in financing the program.

For further information contact one of the 13 district Social Security offices in the following Washington cities. The offices are listed in local phone books under "United States Government, Health, Education and Welfare, Dept. of."

Aberdeen
Bellingham
Bremerton
Everett
Lewiston, Idaho
Olympia
Seattle
Spokane
Tacoma
Vancouver
Walla Walla
Wenatchee
Yakima

D. FEDERAL WAGE AND HOUR LAW

The Fair Labor Standards Act of 1938, known as the Federal Wage and Hour Law, was approved by the President on 25 June, 1938, and became effective 24 October 1938. This legislation is one of the most important labor measures adopted in recent years, for it seeks to correct and to eliminate as rapidly as possible in industries engaged in interstate commerce or in the production of goods for interstate commerce, or enterprises with an annual dollar volume in excess of $250,000, labor conditions detrimental to the maintenance of minimum standards of health, efficiency and general well-being.

The Law creates a Division of Wages and Hours within the Department of Labor under the direction of an administrator appointed by the President by and with the advice of the Senate.

The Fair Labor Standards have been amended, the latest effective February 1, 1967, providing the following standards: A minimum wage of $1.60 an hour; time and one-half pay for overtime after 40 hours (except where otherwise specially provided); a minimum age of 14 years for general employment (except for occupations declared hazardous and certain occupations outside of school hours).

The child labor provisions of the law prohibit producers, manufacturers, and dealers from shipping through interstate commerce, goods produced in an establishment in which within 30 days prior to shipment oppressive child labor has been used. The term "oppressive child labor" applies to employees under the age of 14 years in any occupation or employees between the ages of 16 and 18 in any occupation which has been found and declared by the Children's Bureau to be particularly hazardous for children or detrimental to their health and well-being.

Farm workers, newspaper delivery boys, employees in small (under $250,000) retail and service establishments, employees of street, suburban, interurban electric railway or motor bus carriers, seamen, and persons employed in bona fide executive, administrative, and professional capacities are exempt from both the wage and hour provisions of the law.

The act has conferred broad investigatory powers on the Administrator as to wages, hours and other conditions and practices of employment in any industry subject to the act. He may utilize the services of the bureaus and divisions of the Department of Labor for necessary investigations and inspections, as well as the services of the State and local agencies. The Administrator is empowered to order employers to maintain adequate records on wages and hours.

The law provides that any person wilfully violating the Act is subject to a fine and imprisonment. However, no penalty or imprisonment may be imposed for a first offense. An employer violating the hour or wage provisions of the Act may be liable to his employees for twice the difference between the wage received and the legal minimum wage, and also for any unpaid overtime compensation.

For further information see "Handy Reference Guide to the Fair Labor Standards Act" and CL 101, or Fair Labor Standards Act of 1938 as Amended, U.S.D.L. Publication 1167.

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NOTE: Instructors should be alert to legislative changes affecting the worker. References below are to sources of information in the several departments and their informative manuals which are kept up to date and available at the listed locations.

A. Reference Manual relative to benefits under the Workmen's Compensation and Medical Aid Acts

State Industrial Insurance Office
State Administration Building, Olympia, Washington

B. Unemployment Compensation Information for Claimants S.F. 8139 (Rev. 11-70)

Employment Security Building, Room 417
Olympia, Washington

C. Your Social Security SSI-35

Social Security Administration
1007 South Washington Street
Olympia, Washington

D. The Construction Industry Under Fair Labor Standards Act W.H. 1310 Oct. 70

Regulations - Labor Standards Provisions WHPC #1244

Public Contracts Act - Rulings and Interpretations No. 3 - May 1963

U. S. Department of Labor
Smith Tower Building Room 1821
Seattle, Washington

RELATED INSTRUCTION FOR CARPENTRY APPRENTICES

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1972

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UNIT 7: Rough Framing

TOPIC: Trade Terms and Wood Fastenings

LESSON OBJECTIVES:

To help the apprentice gain a working vocabulary by learning about the special terms used in rough framing, and also give him information concerning wood fastenings.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:

U. B. of C. Transparencies

STUDY ASSIGNMENT:

Modern Carpentry, pp. 67-69, 426
U. B. of C., Unit III, pp. 140-141

IMPORTANT STUDY POINTS:

1. From the Glossary of Terms, pp. 469-472, pick out all the terms that refer to rough framing and study their definitions.

2. Be able to describe all the common wood fastenings used by the carpenter today.

3. Pay particular attention to the proper methods used for the various types of fasteners.

WORK ASSIGNMENT:

Classroom:

1. Name and define ten trade terms that are used mainly in rough framing.
2. How are fastenings that are used in carpentry work classified?
3. How are sizes and weights of nails indicated?
4. What type nail is used in masonry work?
5. How are nails treated to increase their holding power?
6. How are nails treated to reduce corrosion?
7. What is the abbreviations for "penny"?
8. How can you reduce or eliminate the danger of splitting wood while nailing?
9. Name the different types of standard screws used in the carpentry trade.
10. Why is casein glue particularly desirable for construction work?
11. What purpose do timber connectors serve?
12. Name three types of anchors that can be used to fasten wood to concrete and masonry.

WORK ASSIGNMENT (CONTINUED):

Lab:

Test:

INSTRODUCTION TO NEXT LESSON:

Types of Wall, Balloon, Platform, or Western Framing

MATERIAL LIST FOR NEXT LESSON:

UNIT 7: Rough Framing

TOPIC: Types of Wall, Balloon, and Platform or Western Framing

LESSON OBJECTIVES:

To give the apprentice a preliminary understanding of framing practices and have him realize that these practices vary in different localities and vary in specifications.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:

U. B. of C. Transparencies

STUDY ASSIGNMENT:

Modern Carpentry, pp. 135-152
U. B. of C., Unit III, pp. 75-86

IMPORTANT STUDY POINTS:

1. Become familiar with the various types of framing.
2. Pay particular attention to the advantages and disadvantages of balloon and platform framing.
3. Learn how to plumb and align a wall frame.
4. Know the sequence in which all operations should be done.
5. Know the safety practices required in wall framing.

WORK ASSIGNMENT:

Classroom:

1. Make a detailed sketch showing a wall frame assembly.
2. Describe one other type of wall framing procedure.
3. Why is temporary bracing necessary?
4. Why is sequence assembly so important?
5. Itemize advantages and disadvantages of balloon framing compared to western framing.
6. When would you use balloon framing system?

   a. What are two distinguishing features of this type of framing?
   b. Upon what do the second floor joists rest?
   c. Why is it necessary to put fire stops between the studs?
   d. Why are the wall openings cut after fram has been raised?
   e. Why should headers extend to next regular stud?

WORK ASSIGNMENT (Continued):

7. How could you prevent a plumb bob from swinging in the wind?
8. Determine which you prefer and state your reason why--

   a. ribband method
   b. header blocking method

9. Explain how you would plumb and align a wall frame.
10. Why is it advisable to plumb the exterior wall intersecting partition corners before aligning the wall?
11. Why should exterior wall frames be raised before partition walls?
12. Why should temporary bracing be used before permanent bracing?

Lab:

Shop

Test:

INTRODUCTION TO NEXT LESSON:

Sill Construction

MATERIAL LIST FOR NEXT LESSON:

UNIT 7: Rough Framing

TOPIC: Sill Construction

LESSON OBJECTIVES:

To give the apprentice a background of knowledge to enable him to understand sill construction and be able to select type best suited to any particular job.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C.
Uniform Building Code

VISUAL AIDS:

U. B. of C. Transparencies

STUDY ASSIGNMENT:

Modern Carpentry, Wagner, pp. 112-120
U. B. of C., Unit III, pp. 23-27

IMPORTANT STUDY POINTS:

1. Pay particular attention to the different types of sills.
2. Determine the purpose of a sill in building.
3. Learn the advantages and disadvantages of each type of sill.
4. Be able to explain what can be done in sill construction that will aid in the protection against termites and rot.
5. Know on what type construction each still could be used.

WORK ASSIGNMENTS:

Classroom:

1. Make a sketch of each of the following:

   a. "T" sill
   b. Box sill
   c. Double Beam built-up sill

2. Is there any code restriction in your area against using a double beam built-up sill? If so, what is the code requirement?
3. What other purpose could a fire block serve at the beam or header level of a "T" sill?
4. How would you lay out sills to receive floor joist?
5. What carries the joist of upper floors in a balloon frame?
6. In your area, which governs the sill layout, studs, or joist?
7. In sill construction, what can be done to provide protection against termites?
8. What preventative measures should be taken to prevent rot?

WORK ASSIGNMENT (Continued):

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Girders, Beams, and Posts

MATERIAL LIST FOR NEXT LESSON:

UNIT 7: Rough Framing

TOPIC: Girders, Beams, and Posts

LESSON OBJECTIVES:

To give the apprentice a definite procedure in girder, beam, and post assembly.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:

U. B. of C. Transparencies

STUDY ASSIGNMENT:

Modern Carpentry, pp. 111-116, 421-434
U. B. of C., Unit III, pp. 23-28, Unit X

IMPORTANT STUDY POINTS:

1. Note Girder supports.
2. Note difference between girders and beams.
3. Note various methods of post and beam assembly.
4. Learn how to frame a built-up wood girder.
5. Learn why shrinkage is such an important factor when installing beams and posts.

WORK ASSIGNMENT:

Classroom:

1. Detail a beam and girder pocket in concrete.
2. Detail a corbel support for a beam or girder.
3. Detail a post support for each and show method of fastening.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Joist - Floor and Ceiling

MATERIAL LIST FOR NEXT LESSON:

UNIT 7: Rough Framing

TOPIC: Joists - Floor and Ceiling

LESSON OBJECTIVES:

To give the apprentice a working knowledge of joist layout and assembly.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:

U. B. of C. Transparencies

STUDY ASSIGNMENT:

Modern Carepntry, Units 7 and 8
U. B. ov C., Unit III, pp. 26-34

IMPORTANT STUDY POINTS:

1. Study carefully the layout procedure.
2. Know what determines the spacing of joists.
3. Pay particular attention to the tables showing sizes, spacing and loads.
4. Learn why bathroom floors usually present a special problem.
5. Learn how to use joist tables.

WORK ASSIGNMENTS:

Classroom:

1. Detail a joist layout showing spacing.
2. Detail a joist problem showing a fireplace or stair opening and list sequence of assembly.
3. What size of floor joist would you select for a span of 21' 7" spaced 16" with a 30 lb. live load with no plaster.
4. Describe a method of properly anchoring joist to a masonry wall.

IN Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Bridging the Sub-Floors

MATERIAL LIST FOR NEXT LESSON:

UNIT 7: Rough Framing

TOPIC: Bridging and Sub-Floors

LESSON OBJECTIVES:

To help the apprentice understand the function of bridging and the proper types of sub-flooring for a good installation.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:

U. B. of C. Transparencies

STUDY ASSIGNMENT:

Modern Carpentry - Wagner, pp. 111-134
U. B. of C., Unit III, pp. 32-36, 48-54

IMPORTANT STUDY POINTS:

1. Be able to explain the functions and advantages of the different types of bridging.
2. Know why the lower end of cross-bridging should be left loose until finish floor is laid.
3. Be able to give the purposes of sub-flooring.
4. Note the type of material recommended and proper nailing methods.
5. Pay particular attention to the application of all types of sub-flooring.

WORK ASSIGNMENT:

Classroom:

1. How can you obtain the correct length and cut of cross-bridging?
2. Make detail showing the correct installation of cross-bridging.
3. When should bridging be placed and how should it be nailed?
4. Give four purposes that a sub-floor serves.
5. What type of material is commonly used for sub-floors?
6. What kinds of material is considered best for cross-bridging? Why?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Studding, Walls, Partitions and Corners

MATERIAL LIST FOR NEXT LESSON:

UNIT 7: Rough Framing

TOPIC: Studding, Walls, Partitions, and Corners

LESSON OBJECTIVES:

To give the apprentice technical knowledge concerning the purposes of stud spacing, size, and methods of framing exterior and interior corner posts, wood and metal.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:

U. B. of C. Transparencies, slides and tapes

STUDY ASSIGNMENT:

Modern Carpentry - Wagner, pp. 135-151
U. B. of C., Unit III, pp. 63-94, 112-117

IMPORTANT STUDY POINTS:

1. Pay particular attention to the time, material, and nailing required for each method of making corner posts.
2. Realize the importance of keeping all ends square and flush.
3. Be able to describe the methods of assembling corner studs.
4. Know which type of corner stud to use for various finishing requirements.
5. Learn what could result if proper corner studs were not installed.

WORK ASSIGNMENTS:

Classroom:

1. What two purposes do studs serve?
2. What is the standard spacing for studs and why is it used?
3. Describe the common practice used for placing studs in wall and partitions.
4. What are the items to consider before determining the length of studs?
5. What are several uses of a story pole?
6. By using the story pole method, describe how you would determine the stud length for an 8-foot finished ceiling.
7. Show by sketch, three different methods of building up an exterior corner post.
8. What are three important functions of corner posts?
9. When should corner posts be framed, assembled and raised?
10. Draw a sketch of the assembled corner post you consider the most rugged.
11. Explain the reasons for the differences in construction between an interior and exterior corner post.

WORK ASSIGNMENT (Continued):

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Partitions, backing and fire-stops

MATERIAL LIST FOR NEXT LESSON:

UNIT 7: Rough Framing

TOPIC: Partition: Backing and Fire Stops

LESSON OBJECTIVES:

To help the apprentice understand the types of material and methods employed for assembling and erecting interior walls, fire stops and backing.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:

U. B. of C. Transparencies

STUDY ASSIGNMENT:

Modern Carpentry, pp. 142-148
U. B. of C., Unit III, pp. 77-86

IMPORTANT STUDY POINTS:

1. Know why sequence must be established for assembling and raising partition wall frames.
2. Be able to explain the difference between bearing and non-bearing partitions.
3. Learn why special consideration must be given to partitions into which plumbing will be installed.
4. What are joist requirements when partitions run parallel to joist?
5. Become familiar with two main types of fire stops.
6. Be able to define and explain the installation of fire stops.

WORK ASSIGNMENT:

Classroom:

1. Why are fire stops so important in framing?
2. Why should fire stops be provided at each floor level?
3. Why should the ends of fire stops fit snugly?
4. What type construction in itself provides stops at al floors?
5. How is fire stopping accomplished at the chimney?
6. What are the advantages and disadvantages of straight and herringbone fire stops?
7. Which type sill construction does not need a fire stop?
8. When framing around a fireplace or chimney what must the carpenter consider to prevent fire hazards?
9. Give the reason for using a single plate at the bottom and a double plate at the top of a partition.
10. Why are partition studs placed regularly 16" or 24"?
11. In what respect do partitions differ from outside walls?

WORK ASSIGNMENT (CONTINUED):

Classroom:

12. Why is it necessary to establish a sequence for assembling and raising partitions?
13. Name and describe two methods of framing and/or furring a plumbing partition.
14. What is the difference between a bearing and a non-bearing partition?
15. Explain the proper procedure for temporarily bracing a wall frame.
16. Why is partition bridging considered impractical?
17. When and how much additional joist strength should be added when partitions run parallel to joist?
18. Under what conditions would it be necessary to increase the number of joists under partitions that run at right angels to the joist?
19. 19. What methods are used for straightening bowed studs?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Window and Door Openings

MATERIAL LIST FOR NEXT LESSON:

2 x 4s, tape, square, and marking crayon

UNIT 7: Rough Framing

TOPIC: Window and Door Openings

LESSON OBJECTIVES:

To give the apprentice the reasons for framing door and window openings correctly, and to teach the student how various window type sizes are determined.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C.

VISUAL AIDS:

U. B. of C. Transparencies

STUDY ASSIGNMENT:

Modern Carpentry - Wagner, pp. 220-229
U. B. of C., Unit III, pp. 71-76

IMPORTANT STUDY POINTS:

1. Learn how to determine various opening sizes for: (a) double-hung windows, (b) casement windows, and (c) metal framed windows.
2. Learn how to figure door opening sizes.
3. Learn how and when various types of header material are used.
4. Note the use of cripples and trimmers in opening framing.
5. Be able to describe two types of headers.

WORK ASSIGNMENT:

Classroom:

1. Figure rough opening for 3'0"" x 6'8" outside door with sill.
2. Figure rough opening for 3'0" x 6'8" inside door--no sill.
3. Figure rough opening for 5'0" by 3'0" metal window.

Lab:

Lay out a plate to include a partition, door, window, and exterior corner.

Test:

INTRODUCTION TO NEXT LESSON:

Wall Sheathing

MATERIAL LIST FOR NEXT LESSON:

UNIT 7: Rough Framing

TOPIC: Wall Sheathing

LESSON OBJECTIVES:

To present to the apprentice types and uses of sheathing and the necessity of bracing.

REFERENCES:

Modern Carpentry - Wagner
Carpenter Apprentice Training Course, U. B. of C.

VISUAL AIDS:

U. B. of C. Transparencies

STUDY ASSIGNMENT:

Modern Carpentry - Wagner, pp. 142-156
U. B. of C., Unit III, pp. 87-88

IMPORTANT STUDY POINTS:

1. Learn the part sheathing plays in bracing a building.
2. Study the different methods of applying sheathing.
3. Become familiar with the different materials available for sheathing.
4. Know the importance of proper nailing.
5. Learn proper types of sheathing in relation to exterior finish.

WORK ASSIGNMENT:

Classroom:

1. What two important purposes does sheathing serve?
2. What are common methods of applying sheathing?
3. Name common materials used for sheathing and plywood siding.
4. Which of the ones you named do you consider the best for construction? Why?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Framing Square

MATERIAL LIST FOR NEXT LESSON:

UNIT 8: Roof Framing

TOPIC: Framing Square

LESSON OBJECTIVES:

To describe types, uses, and applications of the framing square.

REFERENCES:

Carpenter Apprentice Training Course, U. B. of C.
Simplified Roof Framing - Wilson & Werner

VISUAL AIDS:

Carpentry Unit I - Tranparency Set
Framing Square

STUDY ASSIGNMENT:

U.B. of C. Unit 1 pages 75-88
U.B. of C. Unit on Framing square (Optional)
Simplified Roof framing, pp. 127-154

IMPORTANT STUDY POINTS:

1. Study the scales and table on the framing square.
2. Learn how a framing square can be tested for squareness.
3. Learn how to convert hundreths to sixteenths of an inch by use of the hundreths scale on the framing square.
4. Understand the meaning of the twelths scale on the framing square.
5. Understand the principles of laying out an octagon.
6. Know the two parts of a framing square.

WORK ASSIGNMENTS:

Classroom:

1. Sketch and identify the location of the scales and tables on the framing square.
2. What tongue and blade numbers are used to layout 45°, and 35°?
3. How many board feet in a 1" X 10" - 9' 0"?
4. Name the two parts of the framing square.
5. What is the length of a brace for a right trangle with 3'6" legs by using the brace table on the framing square.

Lab:

1. Layout an octagon

INTRODUCTION TO NEXT LESSON:

Trade terms, types of rafters and ratter cuts.

MATERIAL LIST FOR NEXT LESSON:

UNIT 8: Roof Framing

TOPIC: Trade terms, type of roofs and rafter cuts.

LESSON OBJECTIVE:

To become familiar with the trade terms involved in roof framing.

REFERENCES:

Modern Carpentry - Wagner
Carpenter Apprenticeship Training Course U.B. of C.

VISUAL AIDS:

Transparencies, California course
Transparencies, U. B. of C.

STUDY ASSIGNMENT:

U.B. of C. Unit V, pp. 1-10
Modern Carpentry pages 156, 160, 168, 170.

IMPORTANT STUDY POINTS:

1. Be familiar with the basic roof types.
2. Be familiar with the basic roof terms.

WORK ASSIGNMENT:

Classroom:

1. Make a plan view of the following types of roofs.
   - A. Shed
   - B. Gable
   - C. Hip
   - D. Intersecting
2. Define the following:
   - A. Ridge
   - B. Span
   - C. Total run
   - D. Total rise
   - E. Unit of run
   - F. Unit of rise
   - G. Plumb cut
   - H. Level cut
   - I. Line length
   - J. Actual length

Lab:

Test:

INTRODUCTION TO NEXT LESSON:
Math for roof framing

MATERIAL LIST FOR NEXT LESSON

UNIT 8: Roof Framing

TOPIC: Math for Roof framing.

LESSON OBJECTIVES:

To be able to relate addition, multiplication, division, and conversion of decimals to roof framing.

REFERENCES:

Simplfied roof framing - Wilson & Werner
Modern Carpentry - Wagner
Carpentry Apprentice Training Course - U. B. of C.

VISUAL AIDS:

Transparency of conversion tables.

STUDY ASSIGNMENT:

U.B. of C. Math for Carpentry 1-9, and 20-24.
Modern Carpentry pages 163-167
Simplified Roof framing pages 146, 147

IMPORTANT STUDY POINTS:

1. Be able to divide by two a span of feet and inches to determine total run.
2. Understand that the figures given on the rafter table for units of rafter length per foot run are in inches and hundredths of an inch.
3. Be able to multiply these figures by whole numbers or fractions. (The total run of a building or rafter.)
4. Be able to change the decimal answers to feet, inches, and fractions of an inch.
5. Become acquainted with a decimal equivalent chart that indicates the values of decimals and fractions of an inch.

WORK ASSIGNMENTS:

Classroom:
1. Do worksheet problems of converting decimal fractions to the nearest 16th of an inch sheet 08-13-02.
2. Do worksheet problems on sheet 08-13-03

Lab:

Test:

INTRODUCTION TO NEXT LESSON: Math for Roof Framing

MATERIAL LIST FOR NEXT LESSON:

Carpentry Related

CHANGING DECIMAL FRACTIONS TO MEASUREABLE DIMENSIONS

Fractions of an Inch to 16ths Rule:

When desiring the measureable value of a decimal, simply MULTIPLY the decimal portion of a number by 16. The whole-number part of the answer is the portion of a number by 16ths that the decimal represents. Take notice of any remainder, however, for this may "round off" the number of 16ths by one higher.

EXAMPLE: Change the following fractions to the nearest 16th:

.625" .3" .2816"

Solution:

.625"	.3"	.2816"
x16	x16	x16
3750	18	16896
625	3	2816
10.000 = 10/16	4.8 = 5/16	4.5056 = 5/16

*Special Note:

Some tradesmen find it convenient to write the 16 under the whole number portion of the answer and "box off" the answer. This helps the eye to spot check the work:

EXAMPLES:

.0625"	.83"	.11"		.2"
x16	x16	x16		x16
3750	498	66		12
625	83	11		2
1.0000	13.28	1.76	⇐Round off the	3.2
16"	16"	16" = 2"	remainder when	16"
		16	it is .5 or more.	

Change the following fractions of an inch to the nearest 16th:

.125"	.375"	.9375"	.2"	16.969"
.0625"	.25"	.5"	.3"	58.075"
.4375"	.625"	.6"	.4"	8.025"
.875"	.75"	.7"	.8"	5.05"

MATH FOR ROOF FRAMING

Multiply the following units of rafter length by the total runs indicated:

15" x 9	=	12.82" x 24	=
15" x 14.5	=	12.82" x 13 2/3	=
15" x 16 1/3	=	12.89" x 6	=
13.89" x 10	=	13.42" x 12.917	=
13.89" x 12	=	13.42" x 15	=
13.89" x 17.23	=	18.76" x 15	=
12.65" x 8.53	=	17.69" x 15	=
14.42" x 12	=	17.44" x 15	=
14.42" x 18.75	=	18.76" x 15	=
15.62" x 13	=	19.21: x 12	=

Change the following figures to feet, inches, and fractions of an inch (to the nearest 16th):

182.167"	=	14.565"	=
196.3"	=	236.41"	=
285.125"	=	263.8"	=
300.666"	=	247.75"	=
391.06"	=	362.372"	=
218.281"	=	110.375"	=
176.5"	=	160.625"	=
176.807"	=	160.001"	=
176.005"	=	160.1	=
180"	=	160.2579	=

UNIT 8: Roof Framing

TOPIC: Math for Roof Framing.

LESSON OBJECTIVES:

This lesson will cover converting decimals, addition and multiplication, of fractions, and how to figure board measure.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprenticeship Training Course U.B. of C.

VISUAL AIDS:

Handout sheets

STUDY ASSIGNMENT:

U.B. of C. Math for Carpentry page 12, 13, 16, and 17.
Modern Carpentry page 61, 62.

IMPORTANT STUDY POINTS:

1. Be able to change inches or parts of an inch to a decimal part of a foo by the division method.

2. Be able to change a decimal part of a foot to inches by the multiplication method. (Decimal X 12)

3. Become acquainted with a decimal equivalent conversion chart that indicates the values of decimal parts of a foot and inches.

4. Be able to calculate board measure

5. Be able to figure the cost of an order when the price per thousand board feet is known (price per M.B. F.)

WORK ASSIGNMENTS:

Classroom:

1. If necessary review addition and multiplication of fractions in th math manual.
2. Do worksheet 08-14-08 or 08-14-09
3. Do work sheet on board measure and pricing 08-14-10

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Principles of Roof Framing

MATERIAL LIST FOR NEXT LESSON:

Carpentry Related

CHANGING DECIMAL FRACTIONS TO MEASUREABLE DIMENSIONS

When working with blueprints or doing layout or estimating it ishelpful to be able to interpret figures given in decimal fraction formand be able to know how much thye would measure on a rul or tape. It is equally valuable to turn the process around and be able to convert tape measurements to decimal form. Four simple rules are the basis for handling these problems mathematically.

1	· Inches to Feet Rule	=	÷	by 12
2	· Feet to Inches Rule	=	X	by 12
3	· Fractions of an Inch to 16th Rule	=	X	by 16
4	· Fractions to a Decimal Rule	=	÷	Numerator by Denominator

1. INCHES TO FEET

No matter in which form the inches may be written, simply divide them by 12 and change the sign from (") to (').

EXAMPLES:

5"	to feet =	$\frac{5'}{12}$	or	12	)	.417' / 5.000
8 1/4"	to feet =	$\frac{8\ 1/4'}{12}$	or	12	)	.6875' / 8.2500
97.625"	to feet =	$\frac{97.625'}{12}$	or	12	)	8.135' / 97.625
.75"	to feet =	$\frac{.75'}{.12}$	or	12	)	.0625' / .7500
1/8"	to feet =	$\frac{1/8'}{12}$	or	12	)	.010' / .1250

2. FEET AND FRACTIONS OF A FOOT TO INCHES

No matter in which form the feet may be written, simply multiply them by 12 and change the sign from (') to (").

When there is a fractional remainder left after multiplying, then apply the 16ths Rule to the remainder part only, multiplying this by 16. NOTE EXAMPLE (3) *

EXAMPLES:

(1) What does 19.25' measure?

```
19.25'   <-------- Label is feet
x  12    <-------- Apply Rule #2
 2850
1925
221.00"  <-------- Label is now inches
```

(2) What does 94.58' measure?

In this problem part of the answer is best left in feet. 94' would normally be measured with a steel tape that is numbered in feet, and for this reason it would be necessary to only multiply the decimal fraction part by 12.

94.58' is a whole of 94' and a decimal fraction part of .58' would measure 7".

```
 .58'
x 12    <-------- Rule #2
 116
 58
6.96"          Or 7" when rounded off
```

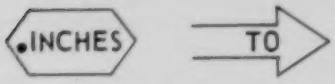
(3) What does 8.21' measure?

```
8.21'
x 12    <-------- Rule #2
1642
821
98.52" *
```

* The .52" remainder is further changed by the "Fractions of an Inch to the 16ths Rule" (.52" x 16 = 8.32 sixteenths or 1/2" strong).

3. DECIMAL FRACTIONS OF AN INCH TO THE NEAREST 16TH

A decimal fraction labeled "inches" or (") can easily be converted to 16ths of an inch by multiplying the numbers to the right of the decimal point by 16. The answ will be the number of 16ths to be measured. Any remainder should be considered as a percentage of another 1/16th. What to do with this percentage of remainder is a matter of judgment. With a remainder of *more than 50 %* you would usually add another 1/16" and call it a "shy" 1/16" (1/16" -). A remainder that is *less than 50 %* would be called a "strong" 1/16" (1/16" +). Tradesmen handle the + and - by the phrases "leave the line" or "cut off the line." If the line is left exposed after a cut, it is a + dimension; if it is cut off, it is considered a - dimension



16ths = **MULTIPLY** X 16

EXAMPLES:

(1) What does 98.52" measure to the nearest 16th"?

98" we leave

.52" becomes

```
 .52"
x 16
 312
  52
8.32"
```

This is interpreted as 8/16" with a 30 % remainder that is written 8/16" +. Reduced to lowest terms this is 1/2" +.

Answer: 98 8/16" + or 98 1/2" +

(2) What does .67" measure to the nearest 16th"?

```
 .67"
x 16
 402
  67
10.72"
```

This is interpreted as 10/16" with a 72 % remainder that is written 1/16" higher to 11/16"-

Answer: 11/16"-

(3) What does 104.86' measure to the nearest 16th"?

When a dimension is labeled feet (') two steps are required:

1st FEET TO INCHES RULE Then .INCHES TO 16ths RULE

```
 .86'
x 12
 172
  86
10.32"
```

```
 .32"
x 16
 192
  32
5.12" = 5/16" +
```

Answer: 104' - 10 5/16" +

4. FRACTIONS TO A DECIMAL EQUIVALENT

Much information is spoken or written in factional form but is desired in a "decimal equivalent" form. To do this, the rule is: Divide the Numberator by the Denominator. That is, the figure above the line is divided by the figure below the line.

EXAMPLES:

(1) Change 9/16" to a decimal fraction.

```
    .5625"
16) 9.0000
   80
   ---
   100
    96
   ---
     40
     32
    ---
      80
```

15625" is the decimal equivalent of 9/16"

(2) Change 8" to a decimal equivalent in FEET.

a. Apply Rule #1, writing the 8" over a Deonominator of 12, and change the sign.

8" to feet = 8/12'

b. Apply Rule #4

```
   .666
12) 8.000
   72
   --
    80
    72
    --
     80
```

= 8" = .67'

(3) Change the following fractions to their decimal equivalents:

1/3; 5/8; 1/20; 2/5; 7/27

1/3 = 3) 1.000 = .33

5/8 = 8) 5.000 =

1/20 = 20) 1.000 =

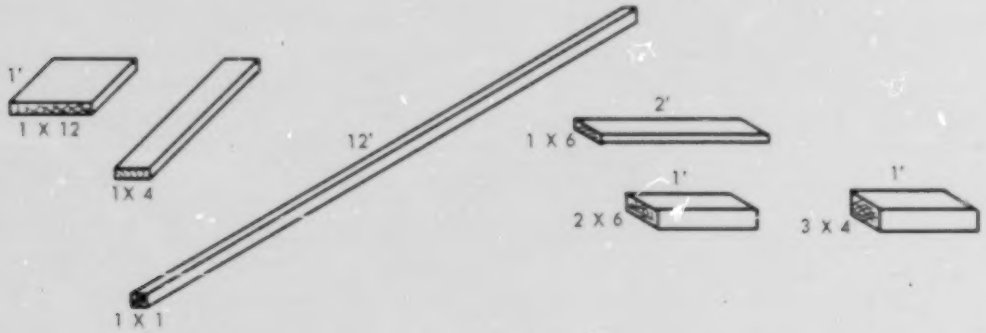
2/5 = 5) 2.000 =

7/27 = 27) 7.000 =

5A. BOARD MEASURE

Lumber is sold by the board foot, square foot, and lineal foot measurement. Most framing lumber is sold by the board foot; plywood, siding, and flooring by the square foot of coverage; and trim or special shaped stocks are sold by the lineal foot.

* A BOARD FOOT is 1" thick, 12" wide, and 1 foot (12") long (1" x 12" x 1'). It is also true that any combination of "thickness in inches" x "width in inches" x "length in feet" when divided by 12 = 1 is a board foot.



Each of the above is one board foot

FORMULAE:

Abbreviations:

BD. FT. or B F = Board Feet
Pcs. = Number of pieces of a given length
Th." = Thickness in inches
W." = Width in inches
L.' = Length in feet
L." = Length in inches
Lin. = Lineal feet of a combination of pieces

$$\text{BD. FT.} = \frac{\text{Pcs} \times \text{Th"} \times \text{W"} \times \text{L'}}{12} \quad \text{(Most framing lumber)}$$

$$\text{BD. FT.} = \frac{\text{Th"} \times \text{W"} \times \text{Lin}}{12} \quad \text{(Combination order)}$$

$$\text{BD. Ft.} = \frac{\text{Th"} \times \text{W"} \times \text{L"}}{12} \quad \text{(Small and odd pieces)}$$

* BOARD FEET may be taken off the ESSEX board measure table on the framing square. The number on the left-hand side of the vertical line is full feet board measure, and the figure at the right of the vertical line is twelfths of a board foot.

  For example: The first column number under 10" indicates that a 1 x 8 10 foot long has 6 8 board feet. This is read as 6 8/12 B.F.

5B. BOARD MEASURE – FIGURING COSTS

Lumber normally is priced per thousand board feet (per MBF). Order sheets usually abbreviate further and simply place a (M) after the price. Although not as common, a (C) is sometimes used to indicate that the price is per hundred.

PIECES	SIZE	LENGTH	DESCRIPTION	FEET	PRICE	AMOUNT
15	cu.ft.		5 sack mix (concrete)	3/4 yd	$20 yd	$15.00
10	2 x 4	6'	#2 struct. S-Grn Fir	40	$98 M	3.92
5	2 x 3	14'	D'Btr Clear Mill Pull Outs S-Grn Fir	35	$160 M	5.60
5	4 x 8	10'	#1 struct. S-Grn Fir	133 1/3	$148 M	19.73

To find the cost of an order, MULTIPLY the total board feet times the cost of one board foot. The cost of one board foot is found by moving the decimal point three places to the left when prices are quoted per M, and two places to the left when they are per C.

PROBLEM: What is the cost of 800 B.F. of studs that sell for $125.00 M ?

SOLUTION: $125.00 M = $.125 (12 1/2¢) per B.F.
800 x $.125 = $100.00

FRACTIONS OF A BOARD FOOT

When a fraction of a board foot needs pricing, it may sometimes be "rounded off" to the nearest foot, or it may be retained. If retained, it is usually easiest to figure the fractional part of the cost of one board foot, and add this to the cost of the full footage. For example: 1/3 of $.125 is about 4¢ ($.04), 2/3 of $.15 is 10¢ ($.10).

PROBLEM: What is the cost of 38 2/3 B.F. of framing lumber priced at $130.00 M ?
$130.00 M ?, @ $185.50 M ?, @ $390.00 M ?

SOLUTION:

$130.00 M = $.13 per B.F.
38 2/3 x $.13 = $4.94 for 38 B.F.
.08 " 2/3 "
$5.02 Ans. $5.02

$185.50 M = $.1855 per B.F.
38 2/3 x $.1855 = $7.05 for 38 B.F.
.12 " 2/3 "
$7.17 Ans. $7.17

$390.00 M = $.39 per B.F.
38 2/3 x $.39 = $14.82 for 38 B.F.
.26 " 2/3 "
$15.08 Ans. $15.08

5C. MATH FOR ROOF FRAMING

Change the Following Decimal Fraction Parts to Fractions of an Inch:

1. 18.063"	_____	11. 16.3875"	_____	21. 29.78"	_____
2. 19.6"	_____	12. 45.75"	_____	22. 30.25"	_____
3. 108.111"	_____	13. .075"	_____	23. 20.075"	_____
4. 108.33"	_____	14. .4"	_____	24. 21.025"	_____
5. 69.7"	_____	15. 6.452"	_____	25. 9.1875"	_____
6. 69.07"	_____	16. 25.875"	_____	26. 9.375"	_____
7. 85.2"	_____	17. 2.9"	_____	27. 9.6475"	_____
8. 84.625"	_____	18. 6.562"	_____	28. 12.7125"	_____
9. 3.9622"	_____	19. 14.875"	_____	29. 2.3"	_____
10. 8.8"	_____	20. 60.729"	_____	30. 8.16"	_____

Add the Following Fractions:

1. 3 1/2" + 3 9/16"	_____	6. 3 1/2 + 7 1/8 + 3/16 + 108 1/4	_____
2. 5/8" + 6/8"	_____	7. 14.42" + 6 3/8" + 15/16" + .125"	_____
3. 5/16 + 6/4	_____	8. 12.16" + 15.00" + 15 5/8"	_____
4. 4 1/8" + 15/16"	_____	9. 5/16 + 5/8 + 1/2 + 3/4 + 3/16	_____
5. 1 1/2" + 2 1/4"	_____	10. 16.97" + 45 1/2" + 13.42"	_____

Divide (Write answers in feet and fractions of a foot)

1. 25' - 6 1/2" ÷ 2	_____	6. 26' - 11 5/8" ÷ 2	_____
2. 18' - 9 1/4" ÷ 2	_____	7. 48' - 0 1/2" ÷ 2	_____
3. 30' - 4" ÷ 2	_____	8. 168 7/8 ÷ 2	_____
4. 28' - 11 3/8": 2	_____	9. 359 1/8" ÷ 2	_____
5. 21' - 3 3/4" ÷ 2	_____	10. 84 1/2" ÷ 2	_____

Give the Fractional Equivalent of the Following Decimals to the Nearest 1/16":

1.	.016"	6.	0.42"	11.	0.69"	16.	0.78"
2.	0.63"	7.	0.89"	12.	0.44"	17.	0.70"
3	0.37"	8.	0.62"	13.	0.21"	18.	0.36"
4.	0.31"	9.	0.28"	14.	0.32"	19.	0.23"
5.	0.65"	10.	0.97"	15.	0.38"	20.	0.09"

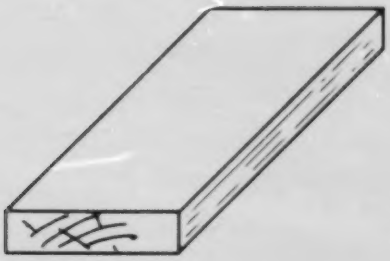
Change the Following Decimals to Inches and Fractions of an Inch:

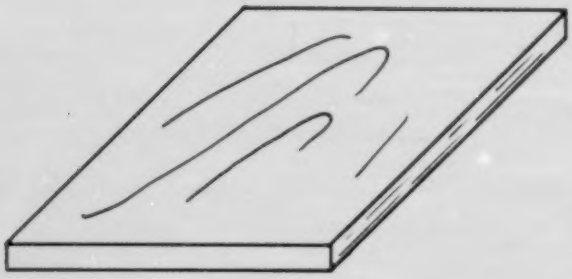
1.	.33'	6.	.91'	11.	.30'	16.	.97'
2.	.27'	7.	.15'	12.	.25'	17.	.37'
3.	.8'	8.	.40'	13.	.50'	18.	.93'
4.	.42'	9.	.64'	14.	.75'	19.	.88'
5.	.46'	10.	.38'	15.	.85'	20.	.54'

Change the Following Fractions to a Decimal Equivalent:

1.	1/64	6.	5/32	11.	3/8	16.	11/16
2.	1/32	7.	3/16	12.	7/16	17.	3/4
3.	1/16	8.	7/32	13.	1/2	18.	13/16
4.	3/32	9.	1/4	14.	9/16	19.	7/8
5.	1/8	10.	5/16	15.	5/8	20.	15/16

5D. BOARD MEASURE





Lumber =
Board Footage

Plywood =
Square Footage

Lumber: Determine the number of board feet in the order and MULTIPLY BY THE PRICE.

Plywood: Determine the number of square feet in the order and MULTIPLY BY THE PRICE.

PROBLEMS:

SHOW WORK:

1. 34 pcs. 2 x 4 14' @ $111.50 per M
   a. Board Feet =
   b. Price =

2. 4 pcs. 2 x 6 8' @ $106.50 per M
   a. Board Feet =
   b. Price =

3. 12 pcs. 2 x 10 16' @ $121.50 per M
   a. Board Feet =
   b. Price =

4. 15 pcs. 4 x 8 x 3/4" Plywood @ $230.00 per M
   a. Square Feet =
   b. Price =

5. 30 pcs. 4 x 8 x 1/2" C DX Plywood @ $185.00 per M
   a. Square Feet =
   b. Price =

DECIMALS OF AN INCH

FRACTION	DECIMAL		FRACTION	DECIMAL
1/16"	.0625"		9/16"	.5625"
1/8"	.125"	Note: For numbers that are	5/8"	.625"
3/16"	.1875"	found between these equivalents,	11/16"	.6875"
1/4"	.25"	round off to the nearest	3/4"	.75"
5/16"	.3125"	fraction:	13/16"	.8125"
3/8"	.375"	.386" = 3/8" + .475" = 1/2" -	7/8"	.875"
7/16"	.4375"		15/16"	.9375"
1/2"	.5"		1"	1.0"

DECIMALS OF A FOOT

INCHES	FRACTIONS OF AN INCH							
	0"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"
0"	.000'	.010'	.021'	.031'	.042'	.052'	.063'	.073'
1"	.083'	.094'	.104'	.115'	.125'	.135'	.146'	.156'
2"	.167'	.177'	.188'	.198'	.208'	.219'	.229'	.240'
3"	.250'	.260'	.271'	.281'	.292'	.302'	.313'	.323'
4"	.333'	.344'	.354'	.365'	.375'	.385'	.396'	.406'
5"	.417'	.427'	.438'	.448'	.458'	.469'	.479'	.490'
6"	.500'	.510'	.521'	.531'	.542'	.552'	.563'	.573'
7"	.583'	.594'	.604'	.615'	.625'	.635'	.646'	.656'
8"	.667'	.677'	.688'	.698'	.708'	.719'	.729'	.740'
9"	.750'	.760'	.771'	.781'	.792'	.802'	.813'	.823'
10"	.833'	.844'	.854'	.865'	.875'	.885'	.896'	.906'
11"	.917'	.927'	.938'	.948'	.958'	.969'	.979'	.990'

UNIT 8: Roof Framing

TOPIC: Principles of Roof Framing

LESSON OBJECTIVES:

To learn the basic terms and dimensions used in roof framing. This requires an understanding of the right angle triangle.

REFERENCES:

1. Simplified Roof Framing - Wilson Werner
2. Modern Carpentry - Wagner
3. Carpentry Apprentice Training Course U.B. of C.

VISUAL AIDS:

Transparencies- California Course

STUDY ASSIGNMENTS:

1. U.B. of C. Unit I page 79.
2. Modern Carpentry pages 158-163
3. Simplified Roof Framing - page 1-7

IMPORTANT STUDY POINTS:

1. Be familiar with the following terms:

   a. Span
   b. Total Rise
   c. Total Run
   d. Unit of run
   e. Plumb & Level Cuts
   f. Length per foot of run (hypotenus)
   g. Line Length

2. Be familiar with all parts of right angle triangle.
3. Be able to change pitch to cut and determine line length.

WORK ASSIGNMENT:

Classroom:

1. Sketch and define the following terms:

   a. Span
   b. Total Run
   c. Total Rise
   d. Unit of Run

2. Change the following pitches to cut:

A. 1/8	E. 1/2
B. 1/4	F. 5/8
C. 1/3	G. 3/4
D. 3/8	H. Full Pitch

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

The Common Rafter

MATERIAL LIST FOR NEXT LESSON:

Framing square
2 X 4 random stock

UNIT 8: Roof Framing

TOPIC: The Common Rafter

LESSON OBJECTIVE:

To learn about the common rafter which is common to all types of roofs and is used as a basis for other rafter layout.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C.
Simplified Roof Framing - Wilson & Werner

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit V, pp. 9-10, 12-13.
Modern Carpentry, pp. 158-163.
Simplified Roof Framing, pp. 9-19

IMPORTANT STUDY POINTS:

1. Be able to locate the common rafters on roof plans.
2. Be able to name all the cuts that apply to the common rafter.
3. Know when and how much the common rafter must be shortened for the ridge.
4. Understand where the measuring line (line length of a rafter) is located.
5. Understand the rafter table on the framing square.

WORK ASSIGNMENTS:

Classroom:

1. How many common rafters are there in the sketch on Page 158 of Modern Carpentry?
2. What is the relationship of the birdsmouth to the line length o of the common rafter?
3. What is the rafter length per foot of run for the following roof cuts?

a. 3 and 12
b. 4 and 12
c. 8 and 12
d. 12 and 12
e. 18 and 12

Lab:

1. Lay out and cut a common rafter for a span 13' - 0", cut 4 and 12, 1' - 2" overhang, ridge 1 1/2".

Test:

INTRODUCTION TO NEXT LESSON: Hip and Valley Rafters

MATERIAL LIST FOR NEXT LESSON: Framing Square

UNIT 8: Roof Framing

TOPIC: Hip and Valley Rafters.

LESSON OBJECTIVES:

Understand the principles and methods used in framing a roof in which hip and valley rafters are used. To emphasize the importance of the use of the unit of 17" when laying out hip and valley rafters.

REFERENCES:

Carpenter apprentice training Course U.B. of C.
Simplified Roof Framing - Wilson and Werner
Modern Carpentry - Wagner

VISUAL AIDS:

STUDY ASSIGNMENT: U.B. of C. Unit V pages 14-18-20-21-22, 23.
Modern Carpentry pages 158-166 to 169, 171-172.
Simplified Roof Framing -page 21-36-51-61.

IMPORTANT STUDY POINTS:

1. Be able to recognize the hips & supporting valley from sketch on Page 158 Modern Carpentry.
2. Understand the importance of the "Unit of 17".
3. Be able to find length of the hip or valley by the line length method.
4. Be able to define the principles of "drop" for hip rafters.
5. Observe the special treatment for overhang and seat cut of the valley & hip rafters.

WORK ASSIGNMENTS:

Classroom:

1. What is the relationship of units of run 12" and 17"?
2. What is the length of hip or valley per foot of run for the following roof cuts?

   a. 2 and 12
   b. 4 and 12
   c. 7 and 12
   d. 10 and 12
   e. 12 and 12

3. For finding line length of hip or valley rafters, what is the total run of the following roof spans?

   a. 36" 6"
   b. 27' 3"
   c. 34' 0"

4. Sketch, label, and find line length of hip rafter for building 24' 0" x 36' 0".

Lab:

Test:

INTRODUCTION TO NEXT LESSON: Jack Rafters

MATERIAL LIST FOR NEXT LESSON: Framing Square, random 2 x 4 stock

UNIT 8: Roof Framing

TOPIC: Jack Rafters

LESSON OBJECTIVES:

Understand why and how jack rafters play an important part in supporting the roof.

REFERENCES:

Carpenter Apprentice Training Course U. B. of C.
Modern Carpentry - Wagner
Simplified Roof Framing - Wilson and Werner

VISUAL AIDS:

Transparencies - California State Dept. of Education

STUDY ASSIGNMENT:

United Brotherhood of Carpenters Unit V, page 26, 27, 29
Modern Carpentry, page 169-172
Simplified roof framing, pages 38-47, pages 62 to 69.

IMPORTANT STUDY POINTS:

1. Be able to recognize the jack rafters.
2. Be able to determine the run of all jack rafters.
3. Understand the proper method of determining the line length of jack rafters.
4. Learn how to find the common differences in length of jack rafters.
5. Know how to shorten hip jack, valley jack, and cripple jack.

WORK ASSIGNMENTS:

Classroom:

1. Name and describe the locations of three kinds of jack rafters
2. In cutting a jack rafter the below terms are used in order. Explain:

    1. Line length
    2. Angle of cut
    3. Shape of cut
    4. Shortening of cut

Lab:

Lay out on a 2 X 4, th following hip jack rafter:

1. Located 4' 0" from corner
2. Cut of the roof is 6 and 12
3, Hip rafter is 2 X 6 material (1 1/2" X 5 1/2")

Test:

INTRODUCTION TO NEXT LESSON:

Rafter cuts and ridge length

MATERIAL LIST FOR NEXT LESSON:

Random 2 X 4 stock
Framing square

UNIT 8: Roof Framing

TOPIC: Rafter Cuts & Ridge length

LESSON OBJECTIVES:

This lesson will emphasize the importance of the rafter cuts and shortening, and how to determine lengths of roof ridges.

REFERENCES:

Carpenter Apprentice Training Course, U. B. of C.
Modern Carpentry - Wagner
Simplified Roof Framing - Wilson & Werner

VISUAL AIDS:

Transparencies - California State Dept. of Education

STUDY ASSIGNMENT:

U. B. of C., Unit V, pp.32
Modern Carpentry, pp. 167-172
Simplified Roof Framing, pp. 19, 47-49, 69-71

IMPORTANT STUDY POINTS:

1. Learn the difference between the theoritical length and the actual length of a ridge.
2. Learn why the hip or common rafter that meet the ridge might change the ridge length.
3. Be able to find the length of the ridge on a gable roof, a hip roof, and an intersecting roof.
4. Understand the shapes of the following rafter cuts.
    A. Supporting Valley
    B. Shortened Valley
    C. Valley Cripple Jack
    D. Hip-valley Cripple Jack

WORK ASSIGNMENTS:

Classroom:

Lab:

Layout:
1. Common Rafter
2. Hip rafter and valley rafter
3. Hip jack
4. Valley jack

Test:

INTRODUCTION TO NEXT LESSON:

Roof detailing and layout

MATERIAL LIST FOR NEXT LESSON:

UNIT 8: Roof Framing

TOPIC: Roof Detailing and Layout.

LESSON OBJECTIVES:

To place an entire hip and gable roof in a scale sketch.
View each rafter and be able to compute actual lengths.

REFERENCES:

Carpenter Apprentice Training Course U. B. of C.

VISUAL AIDS:

Transparancies - California State Dept. of Education

STUDY ASSIGNMENT:

U. B. of C. Unit V page 1

IMPORTANT STUDY POINTS:

Consider the scale of roof to be used and sketching procedures.

WORK ASSIGNMENTS:

Classroom:

Lay out the plan below to 1/4" = 1' scale and plan a roof to these specifications:

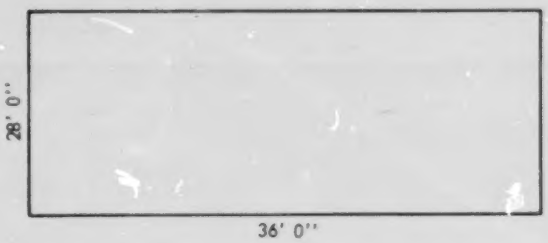
1. Rafters spaced 24" O.C.
2. Cut of roof 5 and 12, hip and gable roof.
3. Ridge - hips 2 X 8.
4. Commons and Jack Rafters 2 X 6.
5. Projection 1' 6"

Lab:

Test:

1. Find actual length of following:

   a. Common rafters
   b. Hip rafters
   c. Number 2 and Number 3 hip jacks
   d. Ridge



INTRODUCTION TO NEXT LESSON:

Roof detailing & Layout

MATERIAL LIST FOR NEXT LESSON:

UNIT 8: Roof Framing

TOPIC: Roof Detailing and Layout

LESSON OBJECTIVE:

This lesson will familiarize the student with sketching, layout and estimating of roof framing. This lesson will concern an intersecting roof

REFERENCES:

Lessons on Roof Framing, 08.11.01 through 08.20.01
Modern Carpentry by Wagner
Carpenter Apprentice Training Course U. B. of C.

VISUAL AIDS:

California Transparency Kit.

STUDY ASSIGNMENTS:

U. B. of C. Math - pages 67, 68.
Modern Carpentry pages 167-171, 182, 183.
U. B. of C. Unit V page 7-13

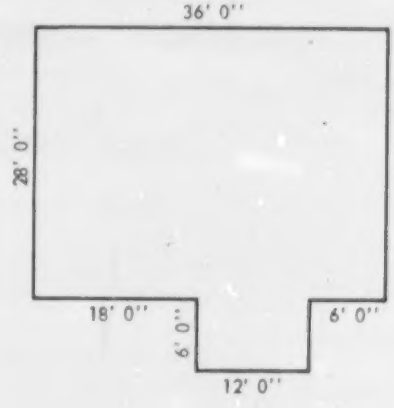
IMPORTANT STUDY POINTS:

1. Consider the scale to use and the proper sketching procedures.
2. Understand how to estimate thenumber of rafters needed.
3. Be able to estimate the lumber needed to frame the roof.
4. Know the use of rafter framing aids.

WORK ASSIGNMENT:

Study Assignment

Lay out the plan to scale of 1/8" to 1'-0"
Rafter spacing 2'-0"
Cut 8 and 12
Ridge and hips 2 X 8
Projections 1'-6"
Find the number and length of rafters needed



Lab:

Using rafter framing aids lay out and cut the major rafters.

Test:

INTROUDCTION TO NEXT LESSON:

Roof detailing and layout

MATERIAL LIST FOR NEXT LESSON:

1. Framing square
2. Framing aids.

UNIT 8: Roof Framing

TOPIC: Roof detailing and layout.

LESSON OBJECTIVES:

This lesson will familiarize the student with sketching, layout, and estimating of roof framing.
This lesson will concern layout and cutting of cripple jacks.

REFERNECES:

Modern Carpentry - Wagner
Simplified Roof Framing - Wilson & Werner

VISUAL AIDS:

California transparency kit.

STUDY ASSIGNMENT:

Modern Carpentry pages 167-172
Simplified Roof Framing pages 66-69

IMPORTANT STUDY POINTS:

1. Consider the scale to use and the proper sketching procedure.
2. Understand how to estimate the number of rafters needed.
3. Be able to determine the lumber needed to frame the roof.
4. Know the uses of rafter framing aids.

WORK ASSIGNMENT:

Classroom:

Complete work assignment 08.22.02

Lab:

1. Lay out and cut a valley cripple jack
2. Lay out and cut a hip valley cripple jack

INTRODUCTION TO NEXT LESSON:

Blind valleys, saddles, dormers

MATERIAL LIST FOR NEXT LESSON:

Framing square and framing aids.

ASSIGNMENT

LAY OUT THE PLAN BELOW TO 1/8" - 1' SCALE AND PLAN A ROOF WITH THESE SPECIFICATIONS: 1/4 PITCHE; HIP ROOF; INTERSECTING RIDGES. LAY OUT ALL RAFTERS 24" O.C. AND ANSWER THE FOLLOWING QUESTIONS:

_____ (1) How many common rafters are there?

_____ (2) How long are the common rafters?

_____ (3) How man hips are there?

_____ (4) How long are the hips?

_____ (5) How many jack rafters are there?

_____ (6) What is the length of the shortest jack rafter?

_____ (7) What is the length of the longest jack rafter?

_____ (8) What is the common difference in length of the hip jack rafter?

_____ (9) How many valley jack rafters are there?

_____ (10) What is the length of the valley jacks?

_____ (11) How many valley rafters are there?

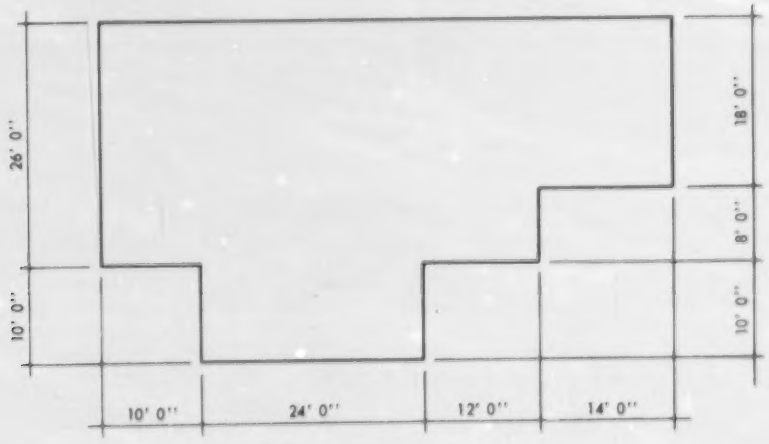
_____ (12) How long are the valley rafters?

_____ (13) Are there any cripple jack rafters and if so how long are they?

_____ (14) How long are the ridges?

_____ (15) What is the perimeter of this roof?

(a)_____ (16) What is the total rise of the (a) major roof, and
(b)_____ (b) minor roof?



UNIT 8: Roof Framing

TOPIC: Blind Valleys, Saddles, and Dormers

LESSON OBJECTIVE:

How to obtain the length and cuts for the framing members of the roof saddles, (crickets), and blind valleys, also the reasons for flashing.

REFERENCES:

Carpenters Apprenticeship Training Course U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

Hand outs

STUDY ASSIGNMENT:

U. B. of C. Unit V, pages 44, 52, 53, 54.
Modern Carpentry pages 174-195, 200.

IMPORTANT STUDY POINTS:

1. Understand the principles of framing a blind valley.
2. Why is blind valley construction used primarily in truss room construction
3. What is the purpose of a vent in Blind Valley Construction?
4. Remember that the width of the chimney is the span of the saddle.

WORK ASSIGNMENT:

Classroom:

1. Lay out a saddle and explain how to make the following cuts:
   Ridge
   Sloping
   Seat Cut
2. How to lay out and position the sole plate.

Lab:

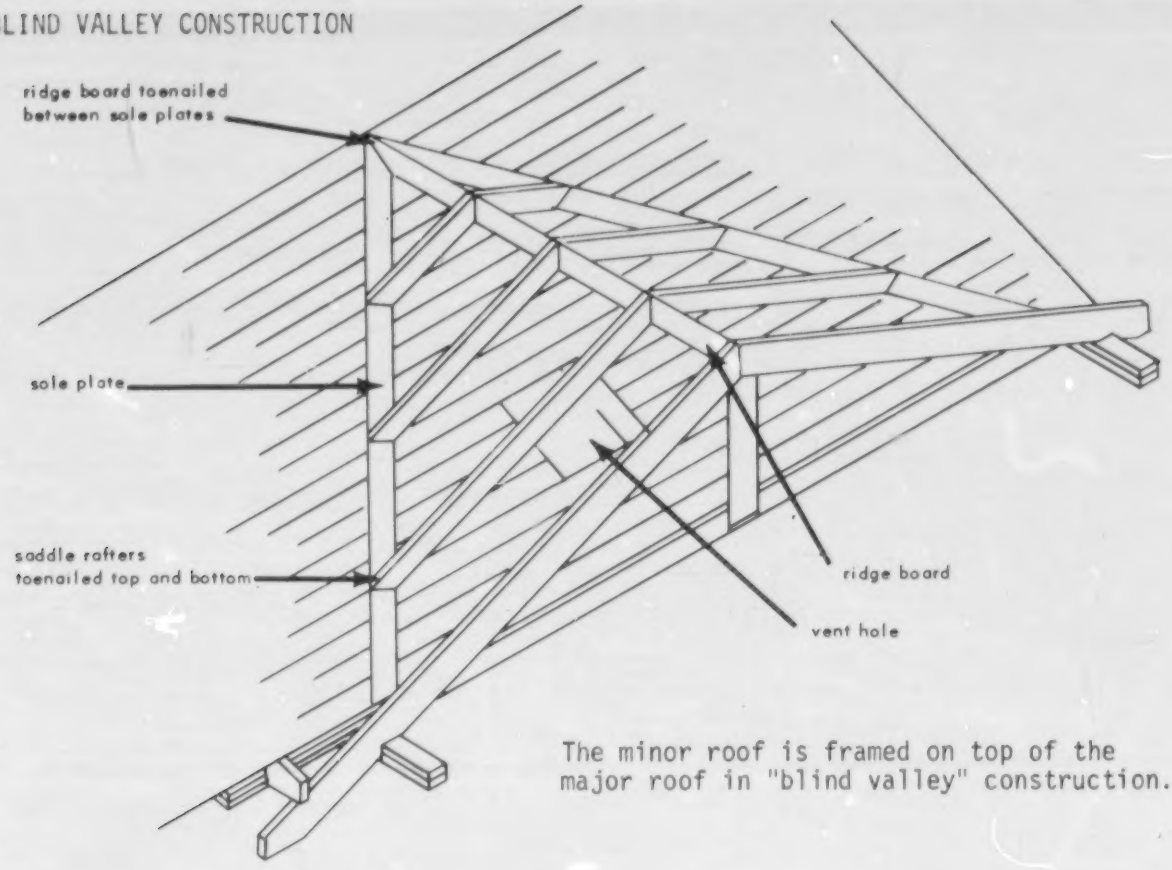
Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

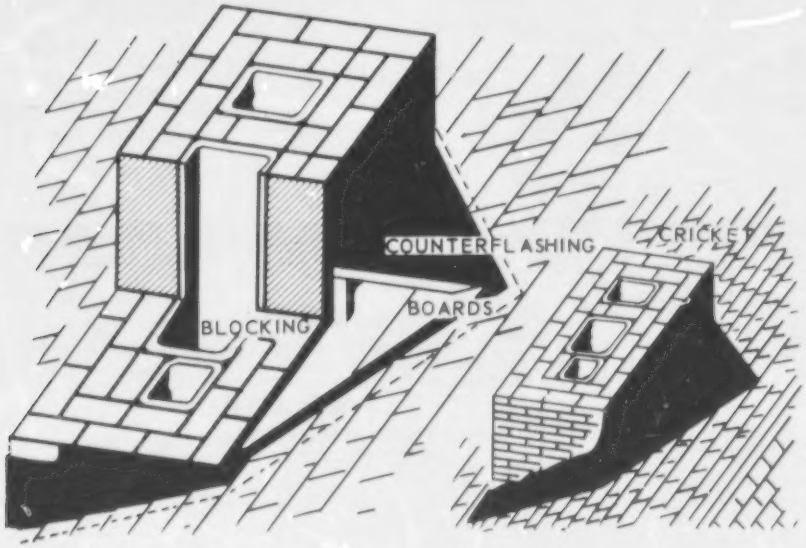
Caulk line and measuring tape

BLIND VALLEY CONSTRUCTION



The minor roof is framed on top of the major roof in "blind valley" construction.

SADDLE AND CRICKET CONSTRUCTION



UNIT 8: Roof Framing

TOPIC: Trusses, light

LESSON OBJECTIVES:

Design, construction and uses of trusses

REFERENCES:

Modern Carpentry - Wagner

VISUAL AIDS:

Manufacturers pamphlets

STUDY ASSIGNMENT:

Modern Carpentry, pp 177-180
Page 435, 436 and 441 of the Manufacturers Pamphlet

IMPORTANT STUDY POINTS:

1. Become familiar with all terms that apply to roof trusses.
2. Study different types of plates and connectors for roof trusses.
3. Study figure 9-48 pp 178 Modern Carpenter.
4. Why is camber so important in bottom chord of truss?
5. Find out the purpose of compression web and tension web.

WORK ASSIGNMENTS:

Classroom:

1. Name the various types of roof trusses, their names and basic design patterns.
2. List the advantages and disadvantages of each and find out where they are most commonly used.

Lab:

Lay out W-Truss on floor with chalk line 5" and 12" 20' span.

Test:

Find the length of the compression web and the tension web (refer to Lab work).

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 9: Stair Construction

TOPIC: Trade Terms

LESSON OBJECTIVES:

To acquaint the apprentice with the various parts of a stair and their correct names.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit VII, pp. 1-2
Modern Carpentry, Unit 16, pp. 348-349
Information Sheet 09.25.02, 03

IMPORTANT STUDY POINTS:

Become familiar with as many of the parts as possible given in the Carpentry Apprentice Training Course, U. B. of C.

WORK ASSIGNMENTS:

Classroom:

1. Name and define at least 25 different stair terms.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

09.26.01

MATERIAL LIST FOR NEXT LESSON:

Uniform Building Code, Latest Edition
Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C., Unit VII

STAIR BUILDING

Trade Terms

1. Baluster: A small column or post forming an ornamental enclosure and supporting the hand rail; usually two to a step.
2. Balustrade: A series or row of balusters joined by a hand rail.
3. Bearers: Supports for winders wedged into the walls and secured by the strings.
4. Carriage: The timber work which supports the steps of a wooden stair.
5. Close String: In dog-legged stairs, a staircase without an open newel.
6. Cockel Stairs: A winding staircase.
7. Circular Stairs: A staircase with steps planned in a circle, all the steps being "winders."
8. Curve Out: A concave curve on the face of a front string at its starting.
9. Curtail Step: The first step by which a stair is ascended, finishing at the end in a form of a scroll following the plan of the hand rail.
10. Dog-Legged Stairs: Such as are solid between the upper flights, or those that have no well hole, the rail and balusters of both the progressive and retrogressive flights falling in the same vertical plane.
    The steps are fixed to strings, newels, and carriages, and the ends of the steps of the inferior kind terminate only on the side of the string.
11. Elliptic Stairs: Those elliptic in plan, each tread converging so that the assembly forms an elliptic ring in plan.
12. Face Mold: A section produced on any inclined plane vertically over a curved plan of hand rail.
13. Flight of Stairs: The series of steps leading from one landing to another.
14. Front String: The "string" on that side of the stair over which the hand rail is placed.
15. Fillet: A band nailed to the face of a front string below the curve and extending the width of a tread.
16. Flyers: Steps in a flight that are parallel to each other.
17. Geometrical Stair: A flight of stairs supported only by the wall at the end of the steps.
18. Half-Space: The interval between two flights of steps in a staircase.
19. Hollow Newel: An opening or "well hole" in the middle of the staircase, as distinguished from "solid newel" into which the ends of the steps are built.
20. Housing: The notches in the string board of a stair for the reception of steps.
21. Knee: A convex bend in the back of a hand rail.
22. Landing: Horizontal resting place in a flight.
23. Newel: The central column around which the steps of a circular staircase wind; the principal part at the angles and foot of a staircase.
24. Nosing: The outer or front edge of the step that projects beyond the riser.
25. Pitching Piece: A horizontal timber with one of its ends wedged into the wall at the top of a flight of stairs to support the upper end of the rough strings.
26. Pitch: Angle or inclination to the horizontal of the stairs.
27. Ramp: A concave or convex curve or casement of an angle, sometimes required at the end of a wreath or an adjoining straight rail.
28. Rise: The vertical distance between the treads or for the entire stairs.
29. Riser: The board forming the vertical portion of the front of a step.
30. Run: The horizontal distance from the first to the last riser of a flight of stairs.

Trade Terms (continued)

31. Squaring a Hand Rail: The method of cutting a blank to the form of a rail so that all the vertical sections may be right angles.
32. Spandril: The Angle formed by a stairway.
33. Stairs: The steps whereby to ascend and descend from one story to another.
34. Staircase: The whole set of stairs with the side members supporting the stairs.
35. Straight Flight of Stairs: One having the steps parallel and at right angles to the strings.
36. Steps: The assembly consisting of a "tread" and a "riser."
37. Scroll or Curtail Step: The bottom step with the front end shaped to receive.
38. String or String Piece: The part of a flight of stairs which forms its ceiling or soffit.
39. String Board: The board next to the well hole which receives the ends of the steps.
40. Step: The horizontal board stepped upon in ascending or descending.
41. Soffit: The under side of an arch or molding.
42. Tread or Run: The horizontal distance between the risers.
43. Wall String: The board placed against the wall to receive the ends of the step.
44. Well: The place occupied by the flight of stairs.
45. Well Hole: The opening in floor at the top of a flight of stairs.
46. Well Staircase: A winding staircase enclosed by walls resembling a well.
47. Winders: Steps not parallel to each other.
48. Wreath: The whole of a helically curved hand rail.
49. Wreath Piece: A portion of a wreath.

UNIT 9: Stair Construction

TOPIC: Stair Types and Code Specs

LESSON OBJECTIVES:

To provide the apprentice with the understanding of different types of stairs and their applicability and to familiarize him with the Building Code Specifications which apply to stair construction in his locality.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Local Area Building Code, Uniform Building Code
Modern Carpentry - Wagner
U. B. of C. Instructors Manual
U. B. of C. Unit Analysis

VISUAL AIDS:

STUDY ASSIGNMENT:

Modern Carpentry - Wagner
U. B. of C., pp. 8, 9, 10, 11
Uniform Building Code, Section 3305

IMPORTANT STUDY POINTS:

1. Learn the difference between a circular stair and an elliptical stair.
2. Learn the difference between a platform and winders, and the reason for each.
3. Study the safety precautions that must be built into a stairway.
4. Learn what a dog-legged stair is.

4

WORK ASSIGNMENTS:

Classroom:

1. Define four different types of stairways.
2. Draw a sketch of each type.

INTRODUCTION TO NEXT LESSON:

Stair Layout, 09.27.01

MATERIAL LIST FOR NEXT LESSON:

Framing Square and Gauges. Jack Material, Tape, Saw Horses, Uniform Building Code, Modern Carpentry, U. B. of C. Unit VII.

UNIT 9: Stair Construction

TOPIC: Stair Layout (Framing)

LESSON OBJECTIVES:

To teach the apprentice the basic principles involved in laying out a stair.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry - Wagner
Uniform Building Code, Latest Edition
U. B. of C. Instructors Manual
U. B. of C. Unit Analysis

VISUAL AIDS:

Framing Square and Gauges, Jack Material, Tape, Pocket Knife

STUDY ASSIGNMENT:

U. B. of C., Unit VII, pp. 4-13.
Modern Carpentry, pp. 351-355

IMPORTANT STUDY POINTS:

1. Study the difference in technique used in laying out a stair horse in contrast to a housed string.
2. Learn how to determine the rough length of a string board.
3. Be able to explain what a stair gauge is and how it is used.
4. Study the difference between the rise and total rise, run and total run of a stair.
5. Learn to lay out a stair story pole.

WORK ASSIGNMENTS:

Classroom:

1. Give at least one formula for the correct proportions for the size of the treads and risers of a main stair.
2. Give the minimum width of a winder tread at the line of travel according to your city or county code.
3. State whether there are more treads of risers in a stair and how many more.
4. Make a freehand drawing showing the exact width of the starting riser in relation to the rest of the risers in a given stair.
5. How far out from the newel of a winder is the line of travel?

INTRODUCTION TO NEXT LESSON: Stair Layout (Finish) 09.28.01

MATERIAL LIST FOR NEXT LESSON: Framing Square and Gauges, Jack Material, Tape, Pocket Knife

STAIR BUILDING

Stair Layout

The art of stair building is a very precise and exact art but it is not nearly as difficult to master as some craftsmen would have you believe.

If you are careful and exacting in your measurements and layout and know your steel square you should not experience any special difficulty with stair work. However, in dividing your total run and total rise into your net run and rise for each individual tread and riser it is very necessary to do this with a pair of dividers or tramel points. So you can check your final layout with these same dividers or tramel points and not have to rely upon your eye sight to divide a sixteenth of an inch the same way numerous times. This method is described in Carpentry Apprentice Training Course, U. B. of C., Unit VII, Page 4, and it should be applied to the layout described on Page 7, U. B. of C., and to check the setting of the square.

The proper procedure is to make a trial layout on the back of the stringer, adjusting the stair gauges on your steel square until your actual layout on the back of the stringer exactly matches the setting of your dividers. If this is done on the back of the stringer to be used, you will not only have your face side clean and free of extra marks to confuse you, but you will have your square set much more accurate than by any other means. It is also important to remember that the bottom edge of a stringer, for a housed or mitered string must be perfectly straight, because it is from this edge rather than the face edge that you do the actual lay out.

Now if you will refer to the U. B. of C., Unit VII, Stair Building, Pages 12-13, you will note the proper method of laying out the string and also the method of making and using the templates for the tread and riser. When you make the tread template as shown on Page 12 and have located the center hole as at A, use a brad in your crank drill to bore this hole so you can use the same size brad to locate this center hole on the string. Now draw a line through the center of this hole, parallel with the top of the template and locate and drill two more holes 1/2" apart back of the first hole. As you lay out your treads with this template, mark each of these three holes on the stringer and after you have laid out the complete stringer, bore 3 holes (using an auger bit the same diameter as the thickness of the treads to be used, generally 1 3/32") five sixteenth (5/16") inch deep, or the depth that you want to rout the string. Always bore the front hole (the one that forms the nosing) first. Then with a sharp, wide butt chisel cut along your layout line between these three holes. This will give you a place to stop your saw.

Next rip out a dozen or so strips of 1/4" plywood 14" or 16" long, being sure they are straight along the edges, and with small brads nail these along the layout marks at the top and bottom of each tread. This gives you a guide for your saw and eliminates the possibility of damaging the exposed face of the stringer. For the actual sawing operation, be sure that you set the blade of your saw 1/4" deeper than you want the routing, because the frame of the saw will actually ride on top of the plywood while the blade runs along the edge. After the treads are all sawed, use the same method on the risers.

Stair Layout (continued)

Now take a 3/4" framing chisel and knock out the wood about half the depth of your routing or a little deeper, possibly, and it will then be a simple matter to remove the rest of the wood to the exact depth with a hand router.

Using this method you can easily rout a pair of stringers for the average stair and size the treads and risers in an 8 hour day after you have had a little practice, providing, of course, that you have a table saw to size your material on. This method is more practical and accurate than using a small electric router and a wooden jig for an occasional stair job. Of course, if you were going to build stairs every day you would want to get a regular heavy duty stair router, but even then it would not do a better or more accurate job than the method described above.

UNIT 9: Stair Construction

TOPIC: Stair Layout (Finish)

LESSON OBJECTIVES:

To teach the apprentice the methods of laying out and finishing the various types of stairway involved in construction.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner
Uniform Building Code, Latest Edition
U. B. of C. Instructors Manual
U. B. of C. Unit Analysis

VISUAL AIDS:

Framing Square and Gauges, Jack Material, Tape, Pocket Knife.

STUDY ASSIGNMENT:

U. B. of C., Unit VII pp. 22-35.
Modern Carpentry pp. 355-359

IMPORTANT STUDY POINTS:

1. Learn to use an adjustable stair tread gauge to cut finish treads.
2. Learn the technique of laying out newels and balusters of a balustrade.
3. Understand the sequence of assembly and connection of treads and risers.

WORK ASSIGNMENTS:

Classroom:

1. List and define the finish parts of a stairway.
2. Draw three different cross sections of tread and riser assembly.

Lab:

Test:

INTRODUCTION OF NEXT LESSON:

Stair Framing (Rough) 09.29.01

MATERIAL LIST FOR NEXT LESSON:

Framing Square and Gauges, Jack Material, Tape, Pocket Knife, Hand Saw.

UNIT 9: Stair Construction

TOPIC: Stair Framing (Rough)

LESSON OBJECTIVES:

To acquaint the apprentice with the proper methods of laying out and framing stair wells, jacks, and landings paying particular attention to backing and the fire stop.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C., C. 1950, Unit VII
Modern Carpentry, Wagner
Uniform Building Code, Latest Edition
International Conference of Building Officials
50 South Los Robles, Pasadena, California 91101
U. B. of C. Instructors Manual, Unit Analysis

VISUAL AIDS:

STUDY ASSIGNMENT:
U. B. of C., Unit VII, pp. 5-18
U. B. of C., Unit III 42-44-46
Modern Carpentry pp. 349-356

IMPORTANT STUDY POINTS:

1. Safety pints, including Building Code.
2. Laying out framing for proper rise and run.
3. Headroom requirements.
4. Backing locations, fire stops, hand rails, skirt boards.

WORK ASSIGNMENTS:

Classroom:

1. What is the minimum headroad requirements?
2. What is considered an ideal step?
3. From what point is the handrail height established?
4. What is the standard handrail height?

Lab:

Layout Stair Stringer

Test:

INTRODUCTION TO NEXT LESSON:

Stair Framing (Finish 09.30.01)

MATERIAL LIST FOR NEXT LESSON:

Framing Square & Gauges, Stringer material, Tape, Pocket Knife.

UNIT 9: Stair Construction

TOPIC: Stair Framing (Finish)

LESSON OBJECTIVES:

To give the apprentice the understanding of the relationship of treads, risers, and skirt boards.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
U. B. of C. Instructors Manual, U. B. of C. Unit VII
Modern Carpentry, Wagner

STUDY ASSIGNMENT:

U. B. of C. pp.22-29
Modern Carpentry pp. 355-356

IMPORTANT STUDY POINTS:

1. Learn the technique of using an adjustable stair gauge (Eliason Stair Gauge)

2. Study the various ways of fitting and assembly of skirt, stringer, riser, and tread materials.

WORK ASSIGNMENTS:

Classroom:

1. List the sequence of assembly of a closed stairway.
2. What is the method of compensating for tread thickness in relation to finish floor material?

INTRODUCTION TO NEXT LESSON:

Stair Framing (Trimming) 09.31.01

MATERIAL LIST FOR NEXT LESSON:

Level, Tape, Scribe, Dividers, Block Plane, Hammer, Nail Sets.

UNIT 9: Stair Construction

TOPIC: Stair Framing (Trimming)

LESSON OBJECTIVES:

To acquaint the apprentice with the construction and installation of the various types of hand rails, balusters and newels.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner
U. B. of C. Instructors Manual

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit VII, pp. 27-35
Modern Carpentry, pp. 358-360

IMPORTANT STUDY POINTS:

1. Be able to define a baluster and balustrade.
2. Be able to define at least three segments of hand rails.
3. Know why the handrail of a lower flight meets the newel at a place different then the upper flight rail.

WORK ASSIGNMENTS:

Classroom:

1. What determines the number and location of the balusters?
2. What is the standard height for a hand rail and how is the height established?
3. Name two different methods of fastening balusters?
4. What are the three parts of a balustrade?
5. How is the railing generally attached to the wall?
6. List common materials used in the construction of handrails?

INTRODUCTION OF NEXT LESSON:

Ramp Ladders, concrete and steel.

MATERIAL LIST FOR NEXT LESSON:

UNIT 9: Stair Construction

TOPIC: Ramps, Ladders, Concrete and Steel (Definitions)

LESSON OBJECTIVES.

Acquaint the apprentice with the regulations governing Ramp Ladders, Porches, and Walk Ways.

REFERENCES:

Uniform Building Code, Latest Edition
Carpentry Apprentice Training Course, U. B. of C.
General Safety Standards, Washington State
Safety Standard For Construction Safety, Red Book, Index

IMPORTANT STUDY POINTS:

1. Study the rules and regulations in the Uniform Building Code and General Safety Standards Governing the subject.

WORK ASSIGNMENTS:

Classroom:

Lab:

Test:

1. What is the spacing of the rungs of a ladder?
2. What is the maximum slope of a ramp?
3. Describe how the construction of a ramp is similar to a stairway?
4. What is the proper slope of a ladder?
5. What is the proper length of a ladder?
6. When are handrails required?

INTRODUCTION TO NEXT LESSON:

Concrete Stairs 09.33.01

MATERIAL LIST FOR NEXT LESSON:

UNIT 9: Stair Construction

TOPIC: Concrete Stairs

LESSON OBJECTIVES:

Relate to the apprentice the techniques used for stair framing to concrete forming.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry - Wagner
Uniform Building Code
Information Sheet 09.33.02 -.03

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., pp. 27-28
Modern Carpentry, pp. 107-108

IMPORTANT STUDY POINTS:

1. Understand the different problems of forming concrete stairs.
2. Become familiar with the placement of reinforcing steel in concrete steps.

WORK ASSIGNMENT:

Classroom:

Lab:

Test:

1. Which would be the easier to construct, the cut-out or the built-up stair stringer?
2. What is the normal amount of tilt for the riser board? Does the top tilt in or out? Why?
3. How soon can the side and riser forms be removed?
4. How long should the slab panel and supporting shoring be left in place?

INTRODUCTION TO NEXT LESSON:

Math and Calculations

MATERIAL LIST FOR NEXT LESSON:

CONCRETE CONSTRUCTION

Precast Concrete

Precasting of concrete is a fairly new innovation in the concrete construction field. Several distinct advantages to this method of placing concrete are as follows:

1. All the forming and pouring can be done directly on a flat surface on the ground, which eliminates a lot of expensive forming and pouring from scaffolds, and dispenses with ramps and chutes built up for the purpose of pouring the sill, stairway, or whatever the particular item may be.

2. No necessity of stripping forms after placing, because all that has been done on the ground.

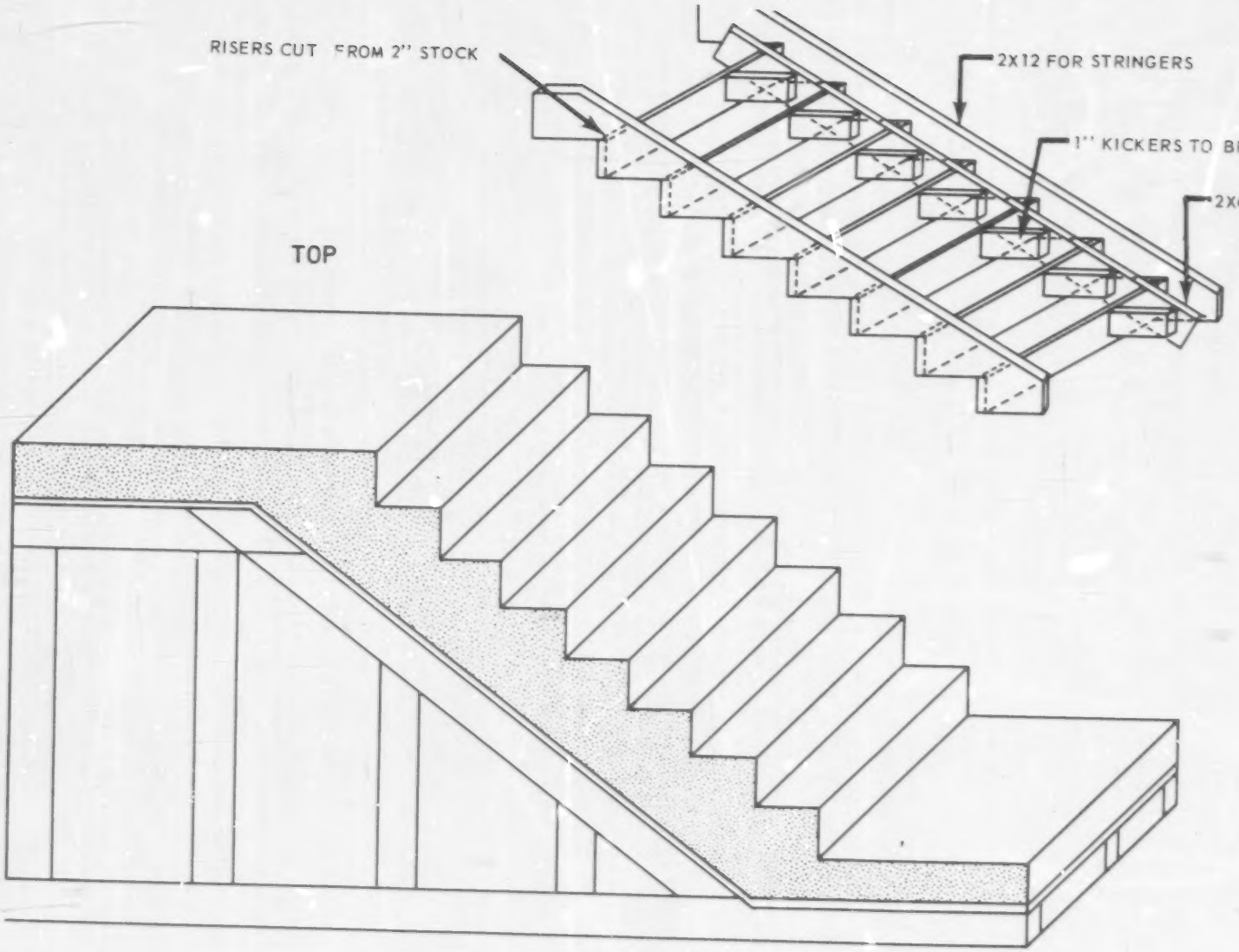
3. In some instances, such as tilt-up walls, only half the material is required for forming.

It should be quite apparent to the apprentice that in precasting sills, beams, and lintels, no shoring is required, and the finished product is set into place with a crane or derrick, thereby shortening the time required to finish the structure, as in many cases beams and lintels must not be stripped for ten days or more.

Consider the obvious advantages of tilt-up walls. The vertical wall is laid out on a horizontal deck; blockouts for doors and windows, called bucks, are placed in the proper position, and the necessary reinforcing iron is laid in place just as though it were a concrete slab. After the pour, the entire wall section is raised in place at once. No vertical forming, scaffolding, or stripping is necessary.

On large buildings, it is not wise to hold up the entire floor of a building while the stairways are being formed and poured, so dowels and keys are ordinarily placed at the location of the landings, and the stairway is poured during the winding-up operations. Of late, precast stairways have assumed prominence because they can be poured at a ground site, and only one set of forms is required. When the concrete is poured, provision is made for eye-bolts at necessary locations, so that a crane may pick up the concrete stairway and set it in place in the field. After setting, the eye-bolts are removed, and resulting holes are grouted closed.

The drawing on the following page will show the forms that are required for a precast stairway.


RISERS CUT FROM 2" STOCK
2X12 FOR STRINGERS
1" KICKERS TO BRACE RISERS
2X6 STRONG BACK
TOP

09.33.03

UNIT 9: Stair Construction

TOPIC: Math and Calculations

LESSON OBJECTIVES:

To familiarize the apprentice on how math is used in stair building layout and framing.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C., Units III and VII

VISUAL AIDS:

STUDY ASSIGNMENT:

Modern Carpentry - Wagner, pp. 350-353
U. B. of C., Unit III, pp. 40-46
U. B. of C., Unit VII, pp. 3, 4, 6

IMPORTANT STUDY POINTS:

1. How to layout story pole (stair).
2. How to calculate tread layout.
3. How to construct and use pitchboard.
4. Learn three general accepted rules for calculating the rise-run (riser-tread) ratios.
5. Learn techniques of attaching stair stringers to upper and lower level supports.

WORK ASSIGNMENT:

Classroom:

From a given rise-run, calculate proper riser and tread dimensions and layout stair stringers making proper allowance for finish, tread, and riser material.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 9: Stairway Construction

TOPIC: Test

LESSON OBJECTIVES:

To test the students comprehension of stair construction

REFERENCES:

All previous materials covered

VISUAL AIDS:

STUDY ASSIGNMENT:

IMPORTANT STUDY POINTS:

WORK ASSIGNMENT:

Classroom:

Lab:

Test:

U. B. of C. Carpentry, Unit VII, Final or Alternate Test (4 hrs.)

INRODUCTION TO NEXT LESSON:

Review and evaluation of tests and materials covered

MATERIAL LIST FOR NEXT LESSON:

UNIT 9: Stair Construction

TOPIC: Review and Evaluation

LESSON OBJECTIVES:

To make certain student is knowledgeable in all phases of stair layout.

REFERENCES:

Modern Carpentry - Wagner
Carpentry Apprentice Training Course, U. B. of C., Units III and VII.

VISUAL AIDS:

STUDY ASSIGNMENT:

Review all chapters on stair building.
Modern Carpentry, Unit 16
U. B. of C., Units III and VII

IMPORTANT STUDY POINTS:

Layout, sketching, and calculations

WORK ASSIGNMENT:

Review and general discussion of test

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

CARPENTRY
Apprentice Related Training

INSTRUCTOR'S MANUAL
3RD YEAR of a 4 YEAR SERIES

3

ED 089026

CE001 071(c)

COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION

VOCATIONAL EDUCATION

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STATE OF WASHINGTON

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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P 73-17

FOREWORD

The Washington State Coordinating Council for Occupational Education, Trade and Industrial Section, is one of the agencies responsible for encouraging the development and promotion of the apprentice training program in this state and, under existing state law, is responsible in cooperation with local schools for providing technical and related instruction for all registered apprentices.

This course of related study in the Carpentry trade is designed to meet the need for organized study in the various technical aspects necessary for an apprentice to become a well-trained journeyman. The apprentice who works hard at learning his trade on-the-job, and who masters the related instructional material included in these lessons will master his trade and become a real asset to his trade and his community.

Arthur A. Binnie
Director and Executive Officer
Coordinating Council for Occupational
Education

ACKNOWLEDGMENTS

The Washington State Coordinating council for Occupational Education, Trade and Industrial Section, recognizes the valuable contribution made by the Revision Committee representing the Carpentry Trade in reviewing, revising, and updating the apprentice-related instruction material contained in this unit of the four-year related instruction curriculum.

The following members are actively engaged in the trade and each made a substantial contribution to the project:

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We further wish to acknowledge the encouragement and support given by members and staff of the Washington State Apprenticeship Council, the Washington State Council of Carpenters, representatives of the United Brotherhood of Carpenters and Joiners of America, representatives of the Associated General Contractors and of the Master Homebuilders.

Special thanks are extended to Coordinators Bob Buckingham, Leonard Liebelt, and Mack Johnson, and to Mr. Earle Bennett, Project Director, who kept us all working to complete the project; to Mr. Steve Bishopp, Program Specialist, CCOE, who designed the covers and handled the printing arrangements; and to Mrs. Gayle DiGiovanni, T & I Secretary, who spent many hours in typing and other support work, and Mrs. Joan Howden, CCOE Secretary, who assisted with typing.

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INTRODUCTION

The Carpentry Apprentice Curriculum Revision Committee started work on September 25, 1971, and worked diligently on the revision of the four-year related training course.

Outmoded trade practices were omitted. New trade trends were included and time adjustments were made to make the practical use of the 144 hours per year of apprentice related training time.

New decimal page numbering is being used to facilitate updating the manual in the future without the necessity of reprinting and renumbering the entire manual.

An example of the page numbering is as follows:

Unit Number	Lesson Number	Page Number
11	.14	.01

Hence, the above page number will read:

11 for Unit 11: Interior Finish

.14 for the fourteenth lesson of the third year

.01 for the page number for the first page of that lesson

Note:

(a) Lesson numbers for the third year are 1 through 36.

(b) Page numbers are for each lesson, 1 through the number of pages for that lesson.

(c) It is recommended that copies of the students' information sheets will be made available in separate printing for use as handouts to each apprentice in training classes.

(d) The complete instructor's manual is intended for the use of instructors only.

REFERENCES

Carpenter Apprentice Training Course, U. B. of C.

Modern Carpentry by Wagner

Safety Standards for Construction Work (Red Book)
Washington State Department of Labor and Industries

Burke, Concrete Accessories

Wood Data Manual No. 2, Canadian Wood Council

COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION

OLYMPIA, WASHINGTON

LEGISLATION AFFECTING WORKERS

REVISED TO FEBRUARY 1, 1971

In recent years many laws have been passed on both federal and state levels that directly affect the working man, his family and dependents. In the apprentice training time available we cannot go into detail about all this legislation. In this lesson the highlights of the most important laws will be discussed. If an apprentice wishes to seek further detailed knowledge about any of them, he should contact his public library, one of the local offices indicated, his employer or his union. Included in this lesson are industrial insurance, unemployment compensation, old age and survivor's insurance, and wages and hours laws.

A. INDUSTRIAL INSURANCE (WORKMEN'S COMPENSATION ACT)

One of the purposes of the Workmen's Compensation Act is to afford to the worker certain and speedy relief in case of industrial accident. The purpose of this lesson is to reduce the law to simple and understandable terms, and to assist in promptly obtaining all the benefits of the Workmen's Compensation Act of the State of Washington. This information is general in nature, and is to serve as a guide in the situations which are most likely to arise under the Act.

1. Workers covered: Generally speaking, all employees engaged in manual labor are automatically covered. Deductions which are automatically made from salary or wages for medical aid (this should not be confused with health coverage as it requires the consent of employee) are proof of coverage by Workmen's Compensation Act. However, employees may be covered without deductions for medical aid being taken from their salary or wages if the employer chooses to absorb these premiums rather than charge them to the employee.

With the approval of their employer, employees who are not otherwise covered may obtain coverage. Such coverage must, of course, be obtained prior to the injury for which a claim is to be made. Forms and information may be obtained from any Service Location of the State Department of Labor and Industries or from the main office in Olympia.

2. How the Workmen's Compensation Act is financed: The premiums for medical benefits, called medical aid premiums, are paid one-half by the employer and one-half by the employee through payroll deductions. It is not unlawful, however, for the employer to absorb the entire medical aid premium and not charge any part of it to the employee.

The premiums for compensation benefits, including monthly compensation for loss of time from work and all disability awards and pensions (called industrial insurance premiums) are paid entirely by the employer. It is unlawful for the employer to charge or deduct from wages or salary any part of such premiums.

Rights to compensation and medical care are not affected by any other insurance which the employee may have. Employees can accept any benefits to which they may be entitled under any other type of insurance and in addition thereto be entitled to receive full industrial insurance benefits from the Department of Labor and Industries.

Payment cannot be reached by creditors through garnishment, execution or attachment until such time as the warrant covering such payment has actually been delivered to the employee by the Department of Labor and Industries.

3. Industrial insurance benefits:

a. Medical benefits include doctor, hospital and nursing care, including x-rays and drugs prescribed by your attending physician, glasses, dental repairs and dentures, artificial appliances, eyes and limbs, where necessary because of an industrial injury or occupational disease.

b. Compensation for loss of time from work is not paid for the day of injury or the three days following said injury, unles the disability continues for 30 or more consecutive calendar days from date of injury. If employer continues to pay full wages or salary, by other than vacation pay, the employee is not entitled to receive monthly time loss compensation. If employee returns to work before his claim is closed and is unable to earn full previous wage or salary due to injury, he will receive the proportionate share of monthly time loss compensation. Scheduled rate of compensation payments for injuries occurring on or after August 6, 1965, are as follows:

SINGLE	$ 185.00
MARRIED	215.00
MARRIED with ONE child under 18 years	252.00
MARRIED with TWO children under 18 years	283.00
MARRIED with THREE children under 18 years	306.00
MARRIED with FOUR children under 18 years	329.00
MARRIED with FIVE children under 18 years	352.00

Payment of monthly time loss compensation has no relationship to whetherthe claimant is receiving vocational rehabilitation services, but is allowed only when his condition, due to his injury, prevents him from working and is not yet medically fixed. Rate of compensation is governed by the law in effect on the day of the injury.

c. Compensation for permanent partial disability: Lump sum award for injury which causes some permanent partial disability but which does not prevent worker from resuming some gainful occupation. Amount of compensation to which employee is entitled is based on certain schedules which are set forth in the law. Awards vary from $270.00 for loss of little finger at distal joint to $15,000.00 for loss of arm or leg at shoulder of hip joint.

d. Compensation for permanent total disability: Provision is made for a pension to a totally permanently disabled worker (added payments for children under 18 years) and pension thereafter to his widow. A total permanently disabled worker is one whose injury completely and permanently disables the worker from regularly following a gainful occupation. A single worker's monthly compensation is $185.00, a married worker's $215.00, a widow with or without minor children $140.00, the youngest child $37.00, next youngest $31.00, each additional child $23.00 (for a maximum of five children.)

e. Compensation for fatal injuries: Provision is made for a pension for widow or invalid widower and for minor children of a worker killed in an industrial accident. The widow or invalid widower would receive $140.00 per month, the youngest child $37.00, the next youngest child $31.00, each additional child $23.00, with maximum for the family $277.00.

4. Ten commandments for injured workmen:

1. Immediately upon the occurrence of an injury give notice of such injury, regardless of how trivial it may appear to be. Report to the person designated by the employer to receive notice of accidents.

2. As soon as employee is physically able he should fill out Report of Accident (or Report of Occupational Disease), at the doctor's office of the hospital. This report should be left with the doctor.

3. After employee has completed his part of the Report of Accident and left it with the doctor, he should check to see that the report is completed by the doctor and mailed to the employer.

4. After four weeks from the signing of the Report of Accident, if some word or acknowledgement has not been received, check with the employer to see if report was received by him from the doctor, acted upon, and turned in to the Department of Labor and Industries.

5. After six weeks, if still no acknowledgment has been received, advise the Department of Labor and Industries through a Service Location or by writing directly to the main office in Olympia, giving name and address of employer, the doctor, nature of injury, and the date of injury. No action can be taken until report is filed.

6. As soon as possible employee should get the names and addresses of all witnesses who saw the accident or who have knowledge concerning the same and have such information available if there is an investigation of the claim.

7. While employee is off work, he will receive each month a postal card, called a "certificate of disability", containing portions to be filled in by the doctor and by the workman. This card should promptly be filled in by both doctor and employee and returned to the Department of Labor and Industries. Payment cannot be made for loss of time from work until this card is returned.

8. Read all communications from the Department of Labor and Industries and follow carefully all instructions.

9. After an award of compensation has been made to the employee (or other final action taken, such as rejection) which he believes to be incorrect or unlawful, he must apply for reconsideration within sixty days after receipt of printed order.

10. After a claim is closed, application for further compensation or treatment can be made providing that employee's condition has become worse since the closing of the claim. Such application must be filed with the Department of Labor and Industries within five years from the date of the closing order.

5. Filing limitations: A workman loses his rights, irrespective of the merits of his claim, unless he meets certain deadlines for filing necessary reports and applications with the Department of Labor and Industries. These limitations are as follows:

Time limit for filing of claim: 1 year after the day upon which the injury occurred.

Time limit for protest or request for reconsideration of an order of the Department must be received by the Department within 60 days from date of receipt of the order. This also applies to appeals to the Board of Industrial Insurance Appeals which is a separate agency composed of a representative from labor, one from management and one from the general public.

Time limit for appealing to court from the Board of Insurance Appeals final order: 30 days.

Time limit for requesting reopening of claim: 5 years

NOTE: Information regarding Industrial Insurance was taken from a pamphlet entitled: "Reference Manual Relative to Benefits Under Workmen's Compensation and Medical Aid Acts, State of Washington" and published by the Department of Labor and Industries of the State of Washington. For copies of this manual and for additional information contact any of the following Service Locations or the Department of Labor and Industries:

Aberdeen	Everett	Port Angeles	Vancouver
Bellingham	Kennewick	Seattle	Wenatchee
Bremerton	Longview	Spokane	Yakima
Ephrata	Mount Vernon	Tacoma	

B. UNEMPLOYMENT COMPENSATION

Under the Federal-State system of unemployment compensation, established under the Federal Social Security Act and the Washington State Employment Security Act, there has been developed the particular program that seems best adapted to conditions prevailing within this state. It is important that apprentices know the details of the employment security program and understand how it functions.

1. Who is covered? In the State of Washington a worker in any firm employing one person at any time is covered by the plan, unless specifically excluded such as: agricultural labor, domestic service in private homes, service for relatives, and self-employment including agents on commission.

2. How is the program financed? This state finances unemployment benefits mainly by contributions from employers on the wages of their workers. There is no tax on employees or deduction from wages. The funds collected are held for the state in the unemployment trust fund (at interest) in the United States Treasury. From this fund, money is drawn to pay benefits. The maximum rate for employer contribution is 2.7% of wages paid, limited to the first $4,200.00 earned by each worker within a calendar year. Congress makes appropriations for the cost of administration of this Federal-State program.

3. How does one qualify for benefits?

a. You must be unemployed to the extent that your earnings are less than your benefits would be for total unemployment.

b. You must have earned not less than $1100 in the first four of the last five completed calendar quarters prior to the quarter in which you file the initial claim for benefits. (The qualifying amount is adjusted annually.)

c. You must register for work with the Employment Service.

d. You must file a claim for benefits (by mail if necessary) and must serve one "waiting week" during which you are not employed.

e. You must be actively seeking work, be physically able to work, and immediately available for work.

f. You must report each week in person unless directed otherwise by the person taking your claim.

4. What are the benefits? The amount of your benefits is determined by your earnings during the four-quarter period mentioned in 3 b. That four-quarter period is called the base year.

5. What will cause one to become disqualified?

a. Failure to apply for available suitable work or refusal to accept suitable work without good cause disqualifies for benefits from the date of such failure or refusal and until the individual returns to work and earns an amount equal to his weekly benefit amount in each of five calendar weeks.

b. Voluntarily quitting work without good cause disqualifies for benefits for that week and for the next ten weeks.

c. Being discharged or suspended for misconduct connected with your work disqualifies for benefits for that week and for the next ten weeks.

d. Knowingly withholding a material fact or making a misrepresentation or false statement in order to obtain benefits disqualifies for benefits for that week and for an additional 26 weeks whenever a claim is filed after being thus disqualified. Criminal prosecution is also a possibility.

e. Being out of work because of labor and management disputes, generally speaking, disqualifies for benefits.

6. Can one appeal a determination of disqualification? An appeal in writing submitted within ten days of the mailing or personal delivery of a notice of disqualification, and delivered to the State Employment Security Office or a local office, will be considered first by an examiner of the department. A second appeal will be heard and determined by the Employment Security Commissioner. Following this, appeal may be made to the courts.

7. Administration. In this state unemployment compensation is administered through the Employment Security Department of the State government. Its executive officer is the Commissioner, who appoints nine members to a state advisory council (3 employers, 3 employees, 3 public). The state council shall aid the agency in formulating policy and discuss problems related to the administration of the unemployment insurance act and assure impartiality and freedom from political influence in the solution of such problems. All employees of the department, except policy-making heads, are appointed on a merit basis.

Information taken from:

Comparison of State Unemployment Insurance Laws as of July 6, 1969, published by the United States Department of Labor, Bureau of Unemployment Security, and

Unemployment Compensation Information for Claimants
SF 8139 (Rev. 11-70)

C. SOCIAL SECURITY (Old Age Survivors Insurance)

The social security act was established by Congress in 1935, at which time the Social Security Board consisting of three members nominated by the President and confirmed by the Senate was established to administer the program of old age and survivors insurance for industrial and commercial workers and their dependents.

The President's reorganization plan No. 2, effective July 6, 1946, abolished the three-member Social Security Board and transferred its functions, as well as certain other federal functions, to the Federal Security Administrator, head of the Federal Security Agency, of which the Social Security Board was a part. On that date the Social Security Administration was established, with the former Chairman of the Board as Commissioner for Social Security.

On April 11, 1953, the Department of Health, Education and Welfare was established with the Social Security Administration as a component of that department. Within the Social Security Administration are four bureaus: Bureau of Old-Age and Survivors Insurance; Bureau of Public Assistance; Children's Bureau; Bureau of Federal Credit Unions.

The Social Security Act has been amended several times since its original passage. As a result, monthly benefits may be paid to the families of retired, disabled, or deceased workers, as well as to the retired or disabled person himself. The benefit amounts have been materially increased over the years until now the minimum benefit amount is $64.00 and the maximum is $434.40 a month on any one social security account. The benefit amounts are subject to fluctuation and current amounts can be ascertained by inquiry at any Social Security Administration office or from their publication SSI-35. Coverage has been extended so that now over nine out of every ten persons earning a living are covered under the program. The following summary describes the old-age, survivors and disability insurance program including the amendments of 1970.

1. Benefits payable to:

a. Retired worker age 65 or woman worker age 62.

b. Wife of retired worker if she is age 62 or over, or regardless of age if entitled child under 18 or adult disabled child is present. Dependent husband* of retired worker if he is age 65 or over.

c. Widow or dependent widower,* age 62 or over, of deceased worker.

d. Children (under age 18) of retired worker, and children of deceased worker and their mother (the worker's widow, or in some cases his divorced wife) regardless of her age. Adult disabled children qualify as though they were under age 18.

e. Dependent parents,* age 65 for father, 62 for mother, or over, of deceased worker.

f. In addition, a lump sum payment upon death of an insured worker.

* Proof of dependency must, in general be filed within two years of worker's entitlement in cases of a dependent husband, and within two years of death in cases of a dependent widower or dependent parent.

2. Insured status:

a. Based on "quarters of coverage." An individual paid $50 or more of non-farm wages in a calendar quarter is credited with a quarter of coverage for the quarter. ($7800 of wages in a year automatically gives four quarters of coverage.) An individual paid $100 or more of farm wages in a year is credited with one quarter of coverage for each full $100 of such wages ($400 or more of such wages automatically gives four quarters of coverage.) An individual with creditable self-employment income in a year (in general, $400 or more) automatically receives four quarters of coverage.

b. Fully insured status gives eligibility for all benefits except dependent husband's benefits and dependent widower's benefits, which require both fully and currently insured status, and child's benefits in respect to a married woman which may be payable only if she has currently insured status. A fully insured person is one who at or after attainment of retirement age, onset of disability, or death fulfills any one of the following three alternative requirements:

1. Has 40 quarters of coverage.

2. Has at least 6 quarters of coverage and at least one quarter of coverage (acquired at any time after 1936) for every two quarters elapsing after 1950 (or age 21, if later) and before retirement age, onset of disability, or death.

3. Has a quarter of coverage in all but four of the quarters after 1954 (but not including the quarter in which he attains retirement age, becomes disabled or dies.)

Most persons who become fully insured will go under the first or second alternatives. The second alternative enables a person who attained retirement age after July 1954 to become fully insured with just six quarters of coverage acquired at any time. Elderly persons who are newly covered under the 1954 or 1956 Amendments may meet the third alternative even though not the second. The third alternative is not effective in any case for persons reaching age 65 or dying after September, 1960.

c. Currently insured status (eligible only for child, mother, and lump-sum survivor benefits; necessary for husband's and widower's benefits) requires 6 quarters of coverage within 13 quarters preceding death or entitlement to old-age benefits.

3. Primary insurance amount:

a. The primary insurance amount is the amount paid to the retired or disabled worker. It is derived from the insured person's average monthly earnings. For those now qualifying for benefits for the first time, average monthly earnings are determined by dividing all covered earnings by all months after December 31, 1936, December 31, 1950, or the last day of the year in which a person reaches age 21, if that date is later than January 1, 1951. The closing date for figuring this average monthly earnings figure is ordinarily the first day of the year in which the person becomes disabled, files his application after reaching retirement age, or dies. As many as five years of the lowest earnings can be dropped out of this computation.

b. The minimum retirement benefit is $64.00 a month and the maximum is $250.70.

c. If a woman elects to receive her benefits starting at age 62 rather than waiting until 65, her payment will be reduced by 20%.

4. Benefits Amounts for Dependents and Survivors, Relative to Worker's Primary Insurance Amount:

a. Wife or dependent husband--one-half of primary. (Wife's benefit will be reduced by 25% if she files at age 62.)
b. Widow or dependent widower--three-fourths of primary.
c. Child--one-half of primary, except that for deceased worker's family, an additional one-quarter of primary is divided among the children.
d. Dependent parent--three-fourths of primary.
e. Lump-sum death payment--three times primary, with $255 maximum.
f. Maximum family benefit is $434.40.
g. Minimum amounts payable to any survivor beneficiary where only one is receiving benefits is $38.90.
h. For examples of monthly payments beginning January 1, 1970, see pamphlet publication of the U. S. Department of Health, Education and Welfard, Social Security Administration SSI-35, May, 1970.

5. Employment permitted without suspension of benefits (Called "Work Clause" or "Retirement Test"):

A beneficiary can earn $1680 in a year in any employment, covered or noncovered, without loss of benefits. In no case, however, are benefits withheld for any month in which the beneficiary's remuneration as an employee was $140 or less and in which he rendered no substantial services in self-employment. For beneficiaries age 72 or over, there is no limitation. If a retired worker's benefit is suspended, so also are the benefits of his dependents.

6. Covered employment:

a. All employment listed below which takes place in the 48 states, the District of Columbia, Alaska, Hawaii, Puerto Rico, or the Virgin Islands, or which is performed outside the United States by American citizens employed by an American employer, (or, by election, by an American citizen employed by a foreign subsidiary of an American employer) is covered employment. Also covered, under certain conditions, is employment on American ships and aircraft outside the United States.

b. Individuals engaged in the following types of employment are covered:

1. Virtually all employees in industry and commerce, other than long-service railroad workers (the service of those who retire or die with less than ten years of railroad service is covered.)

2. Farm and nonfarm self-employed with $400 or more of net earnings from covered self-employment.

3. State and local government employees not covered by a retirement system, and those covered by a retirement system on a referendum basis in which a majority of those eligible to vote are in favor of coverage; in any event, the State must elect such coverage.

4. Nonfarm domestic workers (based on $50 in cash wages from one employer in a quarter.)

5. Farm workers, including farm domestic workers (based on $150 or more in cash wages from any one employer in a year.)

6. Ministers and members of religious orders (other than those who have taken a vow of poverty) either employed by non-profit institutions (in positions which only a minister can fill) or self-employed are covered on individual elective basis as self-employed. Other employees of non-profit institutions are covered on elective basis; employer must elect coverage, and at least two-thirds of employees must concur in coverage (then all employees concurring in coverage and all new employees are covered).

7. Federal employees who are not now covered by retirement system established by law of the United States other than a few specifically excluded small categories.

8. Definition of "employee" is broadened from strict common-law rule to include following groups as "employees"; full-time wholesale salesmen; full-time life insurance salesmen; agent-drivers and commission drivers distributing meat, vegetable or fruit products, bakery products, beverages (other than milk), or laundry or dry cleaning services; and industrial homeworkers paid at least $50 in cash during a quarter and working under specifications supplied by employer.

9. Members of the Armed Forces.

7. Wage credits for World War II and subsequent military service:

World War II veterans and those in service thereafter (including those who die in service) are given wage credits of $160 for each month of active military (including naval) service in World War II and thereafter through December, 1956, except that credit is not given if service is used for any other Federal retirement or survivor system (other than compensation or pensions payable by the Veterans Administration); additional cost is to be borne by trust fund.

8. Maximum annual wage and self-employment income for benefit and contribution purposes:

$4800 per year for 1959 and after ($4200 in 1955-58, $3600 in 1951-54 and $3000 before 1951). $6600 in 1966-67, $7800 in 1968-____.

9. Tax (or contribution) rates:

a. 2-1/4% on employer and 2-1/4% on employee through 1958, 2-1/2% for 1959, 3% for 1960-62, 3-1/2% for 1963-65, 4.2% for 1966, 4.4% for 1967-68, 4.8% for 1969-70, 5.2% for 1971-____.

b. For self-employed the rate is 1-1/2 times that for employees. Self-employment income taxed is, in general, net income from trade or business; special optional provisions based on 50% of gross income are available for farmers with low net income.

c. No provisions for authorizing appropriations from general revenues to assist in financing the program.

For further information contact one of the 13 district Social Security offices in the following Washington cities. The offices are listed in local phone books under "United States Government, Health, Education and Welfare, Dept. of."

Aberdeen
Bellingham
Bremerton
Everett
Lewiston, Idaho
Olympia
Seattle
Spokane
Tacoma
Vancouver
Walla Walla
Wenatchee
Yakima

D. FEDERAL WAGE AND HOUR LAW

The Fair Labor Standards Act of 1938, known as the Federal Wage and Hour Law, was approved by the President on 25 June, 1938 and became effective 24 October 1938. This legislation is one of the most important labor measures adopted in recent years, for it seeks to correct and to eliminate as rapidly as possible in industries engaged in interstate commerce or in the production of goods for interstate commerce, or enterprises with an annual dollar volume in excess of $250,000, labor conditions detrimental to the maintenance of minimum standards of health, efficiency and general well-being.

The Law creates a Division of Wages and Hours within the Department of Labor under the direction of an administrator appointed by the President by and with the advice of the Senate.

The Fair Labor Standards have been amended, the latest effective February 1, 1967, providing the following standards: A minimum wage of $1.60 an hour; time and one-half pay for overtime after 40 hours (except where otherwise specially provided); a minimum age of 14 years for general employment (except for occupations declared hazardous and certain occupations outside of school hours).

The child labor provisions of the law prohibit producers, manufacturers, and dealers from shipping through interstate commerce, goods produced in an establishment in which within 30 days prior to shipment oppressive child labor has been used. The term "oppressive child labor" applies to employees under the age of 14 years in any occupation or employees between the ages of 16 and 18 in any occupation which has been found and declared by the Children's Bureau to be particularly hazardous for children or detrimental to their health and well-being.

Farm workers, newspaper delivery boys, employees in small (under $250,000) retail and service establishments, employees of street, suburban, interurban electric railway or motor bus carrier seamen, and persons employed in bona fide executive, administrative, and professional capacities are exempt from both the wage and hour provisions of the law.

The act has conferred broad investigatory powers on the Administrator as to wages, hours and other conditions and practices of employment in any industry subject to the act. He may utilize the services of the bureaus and divisions of the Department of Labor for necessary investigations and inspections, as well as the services of the State and local agencies. The Administrator is empowered to order employers to maintain adequate records on wages and hours.

The law provides that any person wilfully violating the Act is subject to a fine and imprisonment. However, no penalty or imprisonment may be imposed for a first offense. An employer violating the hour or wage provisions of the Act may be liable to his employees for twice the difference between the wage received and the legal minimum wage, and also for any unpaid overtime compensation.

For further information see "Handy Reference Guide to the Fair Labor Standards Act" and CL 101, or Fair Labor Standards Act of 1938 as Amended, U.S.D.L. Publication 1167.

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NOTE: Instructors should be alert to legislative changes affecting the worker. References below are to sources of information in the several departments and their informative manuals which are kept up to date and available at the listed locations.

A. Reference Manual relative to benefits under the Workmen's Compensation and Medical Aid Acts

State Industrial Insurance Office
State Administration Building, Olympia, Washington

B. Unemployment Compensation Information for Claimants S.F. 8139 (Rev. 11-70)

Employment Security Building, Room 417
Olympia, Washington

C. Your Social Security SSI-35

Social Security Administration
1007 South Washington Street
Olympia, Washington

D. The Construction Industry Under Fair Labor Standards Act W.H. 1310 Oct. 70

Regulations - Labor Standards Provisions WHPC #1244

Public Contracts Act - Rulings and Interpretations No. 3 - May 1963

U. S. Department of Labor
Smith Tower Building Room 1821
Seattle, Washington

RELATED INSTRUCTION FOR CARPENTRY APPRENTICES

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10.04.01 4. Siding, Shakes, Masonry, Stucco, and Vapor Barriers

10.05.01 5. Ventilation, Flashing and Caulking

10.06.01 6. Cornice and Trim

10.07.01 7. Roof Coverings

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13.35.01 11. Precast Prestressed, and Post Tension

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UNIT 10: Exterior Covering, Trim and Insulation

TOPIC: Trade Terms

LESSON OBJECTIVES:

To provide the apprentice with an understanding of the terms used in relation to exterior covering and trim.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

Movies (if available), U. B. of C.

STUDY ASSIGNMENT:

U. B. of C., Unit IV, Exterior Finish, complete chapter
Modern Carpentry, Unit XII, Exterior Wall Finish, p. 249
U. B. of C. Glossary
Modern Carpentry Glossary

IMPORTANT STUDY POINTS:

Study Glossaries in relationship to exterior covering.

WORK ASSIGNMENTS:

Classroom:

1. Describe each of the following:

   a. door frame
   b. window frame
   c. sash
   d. shake
   e. siding
   f. stucco

2. List as many terms used to describe exterior covering and trim as you can.

Lab:

Test:

Exterior Finish, Unit IV, pre-test optional

INTRODUCTION TO NEXT LESSON:

Doors and Windows

MATERIAL LIST FOR NEXT LESSON:

UNIT 10: Exterior Covering, Trim and Insulation

TOPIC: Doors and Windows

LESSON OBJECTIVES:

To give the apprentice a working knowledge of door and window frames used in building.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

U. B. of C. Transparencies

STUDY ASSIGNMENT:

U. B. of C., Unit IV
Modern Carpentry, Unit XI

IMPORTANT STUDY POINTS:

1. Learn how door and window frames are set in wood, brick, and stucco walls.
2. Learn the procedure for setting a door frame.
3. Know how the construction of a double-hung window frame for a masonry wall is done.
4. Learn how to determine various opening sizes for:
   a. double-hung windows
   b. casement windows
   c. metal-framed windows

WORK ASSIGNMENTS:

Classroom:

Detail cross section drawings:
1. Wood door and window frames in masonry walls.
2. Metal door and window frames in wood and masonry walls.

Lab:

Set a jamb and hang door using handtools or template and router.

Test:

INTRODUCTION TO NEXT LESSON:

Doors and Windows

MATERIAL LIST FOR NEXT LESSON:

UNIT 10: Exterior Covering, Trim and Insulation

TOPIC: Doors and Windows

LESSON OBJECTIVES:

To learn how to set door and window frames and trim out and case window and door frames.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

Movies (if available), U. B. of C.

STUDY ASSIGNMENT:

U. B. of C., Unit IV, pp. 2-15
Modern Carpentry, Unit XI, pp. 215-248; Unit XVII, pp. 361-379

IMPORTANT STUDY POINTS:

1. Study how header sizes are determined.
2. Study procedure for setting an exterior door frame.
3. Study the basic types of garage doors.
4. Review different types of windows.

WORK ASSIGNMENTS:

Classroom:

Explain:

1. Setting and trimming out of window and door frames and members. List parts of door and window frames.
2. How do you prepare for stopped-in glass and fixed windows?

Lab:

Test:

Test on members and methods of application.

INTRODUCTION TO NEXT LESSON:

Siding, shakes, masonry, stucco, and vapor barrier.

MATERIAL LIST FOR NEXT LESSON:

UNIT 10: Exterior Covering, Trim and Insulation

TOPIC: Siding, Shakes, Masonry, Stucco, and Vapor Barriers

LESSON OBJECTIVES:

To help apprentice identify stock lumber patterns and various types of siding, description, and method of application. Also, the importance of vapor barrier.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

Movies (if available), Transparencies

STUDY ASSIGNMENTS:

U. B. of C., Unit IV, pp. 31-50
Modern Carpentry, Unit XII, pp. 249-306

IMPORTANT STUDY POINTS:

Become acquainted with the following:

1. types of siding
2. application of siding
3. story pole
4. siding dimensions
5. outside and inside corners

WORK ASSIGNMENTS:

Classroom:

1. Explain the different types of siding and their relation to trim, cornice, and where to install vapor barriers.

2. Define: nominal thickness, D and M, V and CV, clapboards, common siding, bevel siding, rustic siding, log cabin siding, watertable, and belt course.

Lab:

1. Make a story pole and practice using.
2. Work with siding if available.
3. How to make and use a siding hook or preacher.

Test:

U. B. of C., Unit IV

INTRODUCTION TO NEXT LESSON:

Ventilation, flashing, and caulking

MATERIAL LIST FOR NEXT LESSON:

UNIT 10: Exterior Covering, Trim and Insulation

TOPIC: Ventilation, Flashing and Caulking

LESSON OBJECTIVES:

To acquaint the apprentice with the necessity of ventilation, flashing and caulking, where needed and how applied.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

Movies (if available), transparencies

STUDY ASSIGNMENT:

U. B. of C., Unit III, pp. 4, 5 and 17; Unit IV, p. 14; Unit V, pp. 52-54
Modern Carpentry, Unit XIII, pp. 277-305; Unit X, p. 199.

IMPORTANT STUDY POINTS:

1. Learn how, where, and why flashing is used on a building.
2. Learn the purpose of ventilating a structure.
3. Learn the different types of caulking and where used.

WORK ASSIGNMENTS:

Classroom:

1. Describe how to flash chimneys, dormers, valleys, side walls, exterior doors and windows.
2. Explain reasons for ventilating and where to ventilate.

Lab:

Test:

U. B. of C., Unit IV

INTRODUCTION TO NEXT LESSON:

Cornice and trim

MATERIAL LIST FOR NEXT LESSON:

UNIT 10: Exterior Coverings, Trim and Insulation

TOPIC: Cornice and Trim

LESSON OBJECTIVES:

To provide the apprentice with an understanding of cornice and trim construction.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

Movies (if available), transparencies

STUDY ASSIGNMENT:

U. B. of C., Unit IV, pp. 18-28
Modern Carpentry, Unit XII, pp. 249-254

IMPORTANT STUDY POINTS:

WORK ASSIGNMENTS:

Classroom:

1. Study the sequence of assembly of the different construction methods of the following:

a. cornice	d. fascia	g. gutter
b. eaves	e. frieze board	h. barge board
c. rake	f. plancier	

2. Explain the following:

a. What is a cornice?
b. List types of cornices.
c. What is a frieze board?
d. Where is crown molding used, rake molding, and bed molding?
e. Where is barge board used?

Lab:

Test:

Tests on parts of cornice

INTRODUCTION TO NEXT LESSON:

Roof Coverings

MATERIAL LIST FOR NEXT LESSON:

UNIT 10: Exterior Covering, Trim and Insulation

TOPIC: Roof Coverings

LESSON OBJECTIVES:

To give apprentice information about the sizes, uses and handling of shakes, composition and wood shingles.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit V, pp. 48-55
Modern Carpentry, Unit X, pp. 185-213

IMPORTANT STUDY POINTS:

1. Study preparatory procedure necessary before applying shakes, composition and wood shingles.
2. Study how and where flashing goes.
3. Study importance of proper nailing.
4. Study various methods of finishing at eaves, hips, gable ends, ridges and parapets.

WORK ASSIGNMENTS:

Classroom:

1. Define: a square of shingles; exposure; froe shake bolt.
2. How many bundles of 16" cedar shingles to a square?
3. What size nails are used for 16" cedar shingles?
4. When is a shake bolt reversed each time a shake is split off?
5. What does the word "exposure" mean when applied to shingles or shakes?

Lab:

Test:

U. B. of C., Unit V

INTRODUCTION TO NEXT LESSON:

Specialty trim and accessories.

MATERIAL LIST FOR NEXT LESSON:

UNIT 10: Exterior Covering, Trim and Insulation

TOPIC: Specialty Trim and Accessories

LESSON OBJECTIVES:

To acquaint the apprentice with the various types of trim and accessories.

REFERENCES:

Modern Carpentry - Wagner
Manufacturers' Brochures

VISUAL AIDS:

Movies (if available), transparencies

STUDY ASSIGNMENT:

Modern Carpentry, Unit XII, pp. 252-273

IMPORTANT STUDY POINTS:

Learn the details and application for the following:

a. moldings
b. panels
c. louvers
d. siding
e. vents
f. water tables
g. prefabricated cornice
h. railings
i. porch posts and newels
j. columns
k. vinyl and metal trim
l. plexiglass

WORK ASSIGNMENTS:

Classroom:

Lecture and discussion

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Insulation, condensation and curtain walls.

MATERIAL LIST FOR NEXT LESSON:

UNIT 10: Exterior Covering, Trim and Insulation

TOPIC: Part 1: Insulation and Condensation

LESSON OBJECTIVES:

To acquaint the apprentice with the different types and importance of insulation, and the control of condensation.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

Movies (if available), transparencies and samples

STUDY ASSIGNMENT:

U. B. of C., Unit I, pp. 38-39
Modern Carpentry, Unit 13, pp. 277-305

IMPORTANT STUDY POINTS:

1. Learn the difference between conduction, convection and radiation.
2. Learn the different types of insulation.
3. Study the relation of ventilation to condensation.

WORK ASSIGNMENTS:

Classroom:

1. Lecture and discussion.
2. Define the basic forms of insulation.
3. Describe the causes of condensation.

Lab:

Test:

See next page for Part 2 of Lesson 9.

UNIT 10: Exterior Covering, Trim and Insulation

TOPIC: Part 2: Curtain Walls

LESSON OBJECTIVES:

To acquaint the apprentice with the different types and uses of curtain walls.

REFERENCES:

Manufacturers' Brochures

VISUAL AIDS:

STUDY ASSIGNMENT:

Brochures

IMPORTANT STUDY POINTS:

1. Learn the function of exterior curtain walls.
2. Distinguish methods of attaching curtain walls to the structure.
3. Become familiar with types of materials used for curtain walls.

WORK ASSIGNMENT:

Classroom:

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Unit XI, Interior Finish, First Lesson 11.10.01, Trade Terms

MATERIAL LIST FOR NEXT LESSON:

UNIT 11: Interior Finish

TOPIC: Trade Terms

LESSON OBJECTIVES:

To acquaint the apprentice with the various materials, tools, and techniques associated with interior finish.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

Modern Carpentry, pp. 469-472
U. B. of C., Unit I, pp. 61-72, 89-109, 136-137, and 141
U. B. of C., Unit VIII, pp. 21-38

IMPORTANT STUDY POINTS:

1. Pay particular attention to the language, so that you will know the terms used in finish work.
2. Study carefully the details of wood moldings and joints found in the study assignments.
3. Be able to recognize finish materials by sight and name; know where used as well as tools used for installation.

WORK ASSIGNMENTS:

Classroom:

1. List and define 25 materials and 10 tools used in interior finish work.
2. Define the following types of doors:

   a. French
   b. Flush
   c. Access
   d. Louver
   e. Sash
   f. Dutch
   g. Sub-stile

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Interior Doors, 11.11.01

MATERIAL LIST FOR NEXT LESSON: Butts, lock-sets, tools required for installation

Carpentry Related 11.10.01

UNIT 11: Interior Finish

TOPIC: Interior Doors (Lessons 11 and 12)

LESSON OBJECTIVES:

To familiarize the apprentice with the proper methods of setting jambs, hanging doors, and locating hardware.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

STUDY ASSIGNMENTS:

Modern Carpentry, Unit 17, pp. 361-382
U. B. of C., Unit VI, pp. 21-25; Unit VIII, pp. 31-34

IMPORTANT STUDY POINTS:

1. Note the location of center rails in relation to lock, the size of bottom and top rails.
2. Learn the location of butts and locks.
3. Learn the functions of the butt guage.
4. Be able to find the bevel for the latch edge of the stile.
5. Learn when, how and why an astragal is used.
6. Pay particular attention to clearance between door and jamb.
7. Understand why it is necessary to use a door vise or jack to hold a door.
8. Study carefully how to "gain out" for butts.
9. Learn the types of door hinges.
10. Be able to understand the use of each tool used for hanging doors.
11. Learn how to prevent a door from becoming "hinge bound" and how to correct this situation.
12. Learn the different methods used to fasten metal frames into wood, steel, and masonry walls.
13. Learn to fit and hang interior sliding doors.

WORK ASSIGNMENTS:

Classroom:

1. List the tools, power and hand, which the carpenter may use for hanging doors and underline those supplied by the craftsman.
2. What is the location of the center butt on doors which require 1 1/2 pair of butts?
3. How far from the floor should the center of the doorknob be located?
4. Under what conditions would it be necessary to scribe the head of a wood or metal door?

5. Explain why it is necessary to bevel the latch edge of a door and how you would determine the bevel to use.
6. How much clearance should be left at the top and edges of the door?
7. In general practice, how far from the top of the door is the top hinge placed? How far from the bottom of the door is the bottom hinge?
8. How is the depth of the gain for the butt determined?
9. Why is it necessary to use a knife for hardware lay-out when hanging doors?
10. What causes a door to be "hinge bound"? How is this prevented?
11. If the door strikes the latch edge of the jamb, how can it be corrected?
12. What determines the difference between a left hand and a right hand door?
13. Is it necessary to bevel the latch edge of double doors when an astragal is used? Explain in detail; make a sketch.
14. Should there be any clearance between the jamb stop and the door at the hinge side? If so, why and how much?
15. Should the hinge side of a door be beveled like the lock side? Why?
16. Are fire doors always installed to operate automatically?
17. What causes a fire door to operate automatically?
18. Explain the meaning of "pivot line" on a double acting door.
19. Are metal frames ever used in wood partitions?
20. How are the butts fastened to metal frames?
21. Are the edges of metal doors square or are they beveled?
22. Learn how to fit double acting doors; either single doors or in pairs.

INTRODUCTION TO NEXT LESSON:

Interior Doors 11.12.01

MATERIAL LIST FOR NEXT LESSON:

UNIT 11: Interior Finish

TOPIC: Interior Doors (Continued from Lesson 11.11.01)

LESSON OBJECTIVES:

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Interior Trim 11.13.01

MATERIAL LIST FOR NEXT LESSON:

UNIT 11: Interior Finish

TOPIC: Interior Trim

LESSON OBJECTIVES:

To introduce the apprentice to the uses and application of interior trim and its classifications.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

Modern Carpentry, pp. 378-382
U. B. of C., Unit VI, pp. 7-17; Unit VIII, pp. 32-38

IMPORTANT STUDY POINTS:

1. Study carefully the numerous types and shapes of casings, stools and aprons.
2. Be able to recognize all finish materials by sight and name; know where used as well as tools used.
3. Know proper method of stacking.
4. Notice the bevel of the edges of the jamb.
5. Become acquainted with all mitered and coped joints.
6. Know the importance of gluing mitered joints.

WORK ASSIGNMENTS:

Classroom:

1. Explain how to care for trim material.
2. Should the base shoe be nailed to the base, floor, or sub-floor? Why?
3. What methods could be used to join an inside angle?
4. Why is most trim relieved on the back side?
5. What is the purpose of blunting a nail before nailing through finish material?
6. What is the rule for simulating the shape of the cut at the end of a stool?
7. What is the difference between casing and finish nails?
8. What is the rule for nail spacing on casing?
9. If splicing is made in running trim, what type of cut is used?
10. What is the normal reveal on casing?
11. What is the normal procedure for scribing?

INTRODUCTION TO NEXT LESSON: Cabinets 11.14.01

MATERIAL LIST FOR NEXT LESSON:

Carpentry Related 11.13.01

UNIT 11: Interior Finish

TOPIC: Cabinets

LESSON OBJECTIVES:

To acquaint the apprentice with factory and custom-built cabinets and the techniques used in their installation.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner
Information Sheet 11.14.02, 11.14.03

VISUAL AIDS:

U. B. of C. film, Cabinet Installation

STUDY ASSIGNMENT:

Modern Carpentry, pp. 383-406
U. B. of C., Unit VIII, pp. 39-55

IMPORTANT STUDY POINTS:

1. Learn how to fit cabinets to uneven walls.
2. Become familiar with the standard heights, depths, and spacing.
3. Learn the proper methods of fastening cabinets when installing.
4. Learn the proper methods of securing pre-finished counter tops.

WORK ASSIGNMENTS:

Classroom:

Discussion of important study points.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Ceiling Systems - Part 1

MATERIAL LIST FOR NEXT LESSON:

METAL SASH AND DOORS

CABINETS AND LOCKERS

Kitchen cabinets: A great variety of kitchen cabinets is available for the buyer to choose from. Nearly every item that is produced in wood is available in steel. For example, top cabinets are available in many heights (standard sizes--30", 15", 18") and widths (18", 20", 24", 27", 30", 36", 42"). The depth is usually 13".

Top cabinets can have adjustable shelves, or fixed shelves, with doors or without.

Hardware is all installed. It is made of plastic, nylon, stainless steel, or chrome and nickel plated. Hinges have 180° swing and are generally concealed. Usually a cabinet can be mounted without regard for the swing of its doors because the hinges swing the hinge side of the door away from the wall.

Bottom cabinets also are available in great variety: Sink cabinets of many lengths (36" to 66"), and many types of sinks, half-round end counters, peninsula counters, corner and spinner cabinets, cabinets with drawers, with doors, or both, cabinets for storing trays, garbage, flour, lids, pots, sifters, cutlery, and all else found in any kitchen. Such cabinets come in lengths 6" to 72", in widths 22" to 25", and heights 34 1/2" to 36".

See also any commercial catalogue on steel cabinets, and consult Sweet's File for details.

Another type of cabinet is called the "utility cabinet", which serves in the home as a broom closet, linen closet, or for any other general storage. These cabinets are as tall as 84" to shorter, 18", 21", 24" wide, and 13" to 25" deep.

Many accessories are available which match steel cabinets in color and style, such as cake and bread boxes, trays, lid racks, storage bins for flour and sugar, towel racks, fluorescent lights, extra shelves, ovens, warmers, range units, refrigerator units, hoods, dishwashers, sifters, and mixer lift shelves.

Steel kitchens are generally planned and laid out with the aid of models. However, the actual layout by the carpenter should be made either on the walls of the kitchen, if this is possible, or on pieces of 1 x 4 or 1 x 6 called a "layout stick", the length on one side and the elevation on the other. A separate layout should be made for each wall.

Since steel cabinets cannot always be made to fit every situation, fillers for both top and bottom cabinets can be added to fill up spaces. These fillers are 1", 1 1/2", 2", 2 1/2" and 3" wide. Scribers are also available for closing holes on exposed ends where walls are uneven.

Counter tops for individual cabinets are available ready-finished, along with the cabinet, but in aggregations of cabinets individual counter tops would not be as satisfactory as continuous counters would be. The counter tope is made of plywood, covered with formica or linoleum, and the edges and backs finished with the customary moulds. Metal cabinets can also be finished with hardwood counter tops. Some kinds have vinyl plastic bonded to steel tops available in long lengths for custom cutting. Wooden tops are also available in long lengths that can be cut to suit the situation.

Metal cabinets are usually fastened to the walls with wood screws, bolts and shields, or toggle bolts, depending on the composition of the wall. Holes are provided in the backs of cabinets for this purpose. On new construction, backing should be provided for in the proper places as determined beforehand from details of the cabinets to be installed. This backing can be short "two-by" stock nailed between the studs, or plywood nailed to studding instead of the usual plaster or plasterboard. In any case, walls on which cabinets are to be mounted must be flat and plumb. All corners must be square. Usually the top cabinets are mounted under a cornice, and a bad fit on the joint between cabinet and cornice would then have to be covered with a mould. Moulds for the purpose are available from the manufacturers of steel cabinets.

Where the top cabinets are not mounted under a cornice, a hanging strip or bar is provided for by the manufacturer. The bar is perforated every 16 inches so as to be nailed to the studding, and a flange on the back of the cabinet fits over the bar in such a manner as to draw the cabinet firmly against the wall.

Much standardization has been accomplished through the National Steel Cabinet Institute.

Steel lockers are free standing on steel legs or without them, alone or in groups bolted together through their sides, (recessed), mounted in groups in an opening prepared in a wall. Here too, the lockers are bolted together through their sides and fastened, screwed or bolted, to the framing on the bottom and top, or the back. Base must be level and opening square and true, and in one plane.

UNIT 11: Interior Finish

TOPIC: Ceiling Systems - Part 1

LESSON OBJECTIVES:

To become familiar with ceiling systems and their layout and installation.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner

VISUAL AIDS:

U. B. of C. Film

STUDY ASSIGNMENT:

Modern Carpentry, pp. 323-330
U. B. of C., Unit VI, p. 19

IMPORTANT STUDY POINTS:

1. Learn the proper methods of ceiling lay-out.
2. Become familiar with the use of proper scaffolding.
3. Know the different methods of installation.

WORK ASSIGNMENTS:

Classroom:

1. Explain the method used to arrive at even borders around the room.
2. What is the purpose of a suspending ceiling?
3. How is a drop ceiling suspended?

Lab:

Test:

See next page for Part 2 of Lesson 15.

UNIT 11: Interior Finish

TOPIC: Floor Systems - Part 2

LESSON OBJECTIVES:

To inform the apprentice of the types and methods of installation of access flooring systems.

REFERENCES:

Manufacturers' Brochures:
- Mult-a-Floor
- Westinghouse Floor Systems
- Weber Floor Systems
- Tate Infinite Access Floors

VISUAL AIDS:

STUDY ASSIGNMENT:

IMPORTANT STUDY POINTS:

1. Learn the types of support units used for access floor systems.
2. Know the methods of lay-out and installation.
3. Become familiar with materials used to construct access floor panels.
4. Learn the different uses of access floor systems.

WORK ASSIGNMENTS:

Classroom:

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Moveable Partitions, 11.16.01

MATERIAL LIST FOR NEXT LESSON:

UNIT 11: Interior Finish

TOPIC: Moveable Partitions

LESSON OBJECTIVES:

To acquaint the apprentice with the newest techniques and materials used as room and office separations and dividers.

REFERENCES:

Manufacturers' Brochures:
- Kaiser Gypsum Co.
- National Gypsum Co.
- United States Gypsum Co.
- Masonite Corp.
- Donn Products, Inc.
- Mills Moveable Walls

VISUAL AIDS:

STUDY ASSIGNMENT:

IMPORTANT STUDY POINTS:

1. Learn the different materials and shapes used as supporting members for moveable partitions.
2. Learn the techniques used to fasten finish materials to supporting members.
3. Become familiar with the types of materials used as wall coverings.
4. Know the limitations of moveable partitions as a building unit.

WORK ASSIGNMENTS:

Classroom:

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Hardware, 11.17.01

MATERIAL LIST FOR NEXT LESSON:

UNIT 11: Interior Finish

TOPIC: Hardware

LESSON OBJECTIVES:

To make the apprentice familiar with all types of hardware used on the construction site, both residential and commercial.

REFERENCES:

Modern Carpentry - Wagner
Manufacturers' Brochures

VISUAL AIDS:

STUDY ASSIGNMENT:

IMPORTANT STUDY POINTS:

1. Learn the distinguishing differences between residential and commercial type hardware.
2. Become familiar with the methods used to adjust door closures.
3. Know what materials are used to protect lower faces of personnel doors.
4. Learn the methods of securing the pin of a security butt.

WORK ASSIGNMENTS:

Classroom:

1. What are the recommended heights of lock sets, push-pull plates, dead locks, and panic hardware?
2. Give the finish symbol codes for the following hardware finishes:
    a. Bright brass
    b. Bronze, dull, bright
    c. Chrome, dull, bright
    d. Aluminum, dull, anodized
    e. Stainless steel, dull, bright
3. Why is it necessary for ball bearing butts to be used on a commercial type door?
4. List six manufacturers of both commercial and residential hardware.
5. On a pair of doors, to which leaf is the astragal attached?
6. List and describe the four types of door locks used in construction.

Classroom: (continued)

7. What are the four basic types of closure installations?
8. What are the fire code requirements for door closures?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 12: Timber Structures

TOPIC: Trade Terms, Special Safety Problems

LESSON OBJECTIVES:

To familiarize the apprentice with trade terms, characteristics, and properties of wood for timber structures.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Modern Carpentry - Wagner
Safety Standards, Construction Work (Red Book)

VISUAL AIDS:

STUDY ASSIGNMENT:

Glossary, U. B. of C.
Modern Carpentry, Glossary, pp. 421-432
U. B. of C., Unit X, pp. 47-65

IMPORTANT STUDY POINTS:

1. Be able to recognize characteristics and properties of structural timbers.
2. Be able to recognize the types of beams, trusses, posts, arches, and fasteners.
3. What equipment and method is used in timber erection and safety factors in timber erection.

WORK ASSIGNMENT:

Classroom:

1. List the various types of trusses, beams, arches, and posts.
2. Why is safety important in handling and erection of timber construction.

INTRODUCTION TO NEXT LESSON:

Rigging and signaling

MATERIAL LIST FOR NEXT LESSON:

1. Rope (10 foot section)
2. Cable and clamps

UNIT 12: Timber Structures

TOPIC: Rigging and Signaling

LESSON OBJECTIVES:

To familiarize the apprentice with the correct hand signals and proper methods of rigging.

REFERENCES:

Safety Standards (Red Book)
Carpenter Apprentice Training Course, U. B. of C.
Manufacturers Pamphlets

VISUAL AIDS:

Knots and Rigging, U. B. of C.
Hand Signaling, U. B. of C.

STUDY ASSIGNMENT:

U. B. of C., Unit I, pp. 49-60
Safety Standards (Red Book)
Chapter on hoisting, derricks, and cranes.

IMPORTANT STUDY POINTS:

1. Learn to identify the various hand signals and their meanings.
2. Study the various knots and splices and their uses in rigging.
3. Study the different materials used for slings in the handling of different types of material.
4. Study the methods of attaching wire rope, clips (clamps).
5. Understand the various blocks and their mechanical advantages.

WORK ASSIGNMENT:

Classroom:

1. Show the transparencies of the U. B. of C., Knots and Rigging; and, also, transparencies on Hand Signaling.

Lab:

1. Practice the Hand Signals.
2. Practice knots and hitches.
3. Correct procedure for securing clamps on wire rope.

Test:

INTRODUCTION TO NEXT LESSON:

Heavy timber, details and fasteners.

MATERIAL FOR NEXT LESSON:

UNIT 12: Timber Structure

TOPIC: Heavy Timber, Details and Fasteners

LESSON OBJECTIVES:

To provide the apprentices with a knowledge of heavy timber details and fasteners.

REFERENCES:

Carpenter Apprentice Training Course, U. B. of C.
Manufacturers Pamphlets
Modern Carpentry - Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit X, pp. 47-54.
Modern Carpentry, pp. 425-426

IMPORTANT STUDY POINTS:

1. Framing to concrete walls and wooden beams.
2. Framing to steel beams and trusses.
3. Study the different types of fasteners, connectors, and hangers; and how used.

WORK ASSIGNMENT:

Classroom:

1. List the fasteners, connectors, and hangers used in heavy timber construction.
2. Which is the better method of carrying the ends of the timbers.
3. What could be done to assure that timber remain straight when bolted to a concrete wall.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Bridge and Highway Structure

MATERIAL LIST FOR NEXT LESSON:

UNIT 12: Timber Structures

TOPIC: Bridge and Highway Structures

LESSON OBJECTIVES:

To acquaint the apprentice with highway and bridge structures, so that he can readily adjust himself to ever changing job conditions.

REFERENCES:

Carpenter Apprentice Training Course, U. B. of C.
Burke Concrete Specialies
Manufacturers Brochures
Safety Standards for Construction Work (Red Book)

VISUAL AIDS:

U. B. of C. Film on Bridge Construction and Highway Construction

STUDY ASSIGNMENT:

IMPORTANT STUDY POINTS:

1. Learn the different designs of bridges and highway structures, and methods of forming for different types. Study the advantages of pre-cast versus poured-in-place concrete and types of forming material used.
2. In viewing film, observe and list the various types of bridge and highway construction, forming methods used, safety and proper handling procedure.

WORK ASSIGNMENT:

Classroom:

Lab;

Test:

Make out a work progress sheet for erection of a highway structure.

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 12: Timber Structures

TOPIC: Post and Beam Construction

LESSON OBJECTIVES:

To familiarize the apprentice with the components and methods used in post and beam construction.

REFERENCES:

Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner
Wood Data Manual No. 2, Canadian Wood Council

VISUAL AIDS:

U. B. of C., Unit III, pp. 7, Figure 4

STUDY ASSIGNMENT:

U. B. of C., Unit III, pp. 7, Fig. 4
Modern Carpentry, pp. 421-431
Study complete Wood Data Manual #2

IMPORTANT STUDY POINTS:

1. Learn the principles and characteristics of post and beam.
2. Be able to define the various components.
3. Types of posts and beams.
4. Design loads and deflection.
5. Deck laying patterns.
6. Types of beam spans.
7. Solid and box beams - cased beams.
8. Laminated and milled beams.
9. Methods of fastening.

WORK ASSIGNMENT:

Classroom:

Use, test your knowledge - Unit 20, Modern Carpentry
List the various types of fasteners used in post and beam construction.
Draw a sketch of a typical post and beam framing.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

UNIT 12: Timber Structures

TOPIC: Trusses and Cribbing

LESSON OBJECTIVES:

To acquaint the apprentice with the different types of trusses, their design, their application, and their capacities for live and dead loads. The placing of cribbing and the safety factors involved.

REFERENCES:

Carpenter Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner
State Safety Standards (Red Book)

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit X, pp. 55-65
Modern Carpentry, pp. 177-180
Safety Standards, pp. 14-20

IMPORTANT STUDY POINTS:

1. Understand the purpose and proper placing of cribbing.
2. Understand the various trusses and the purpose of the different trusses.
3. Understand the difference between live and dead loads.
4. Understand the reason for the use of keys and split rings in truss construction.

WORK ASSIGNMENT:

Classroom:

1. Sketch cribbing to be used in soft, sandy soil, or filled ground.
2. List the various trusses, the purpose, and where used.
3. Sketch how the hardwood keys are used intrusses, also how split rings are installed in trusses.
4. What is the difference between dead and live loads and how are they determined.

INT Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Structural Laminated Construction

MATERIAL LIST FOR NEXT LESSON:

UNIT 12: Timber Structures

TOPIC: Structural Laminated Construction

LESSON OBJECTIVES:

To acquaint the apprentice with the material, method of assemlby, uses and advantages of glued lamination.

REFERENCES:

Modern Carpentry - Wagner
Manufacurers pamphlets

VISUAL AIDS:

STUDY ASSIGNMENT:

Modern Carpentry, pp. 429-431

IMPORTANT STUDY POINTS:

1. Learn the types of laminated wood arches.
2. Learn how the lumber is spliced in a laminated beam.
3. Learn the advantage of using laminated beams and what type of building is best suited for their use.

WORK ASSIGNMENT:

Classroom:

1. List the basic types of laminated wood arches.
2. What woods are used and how are they spliced in making laminated beams.
3. What safety factors are involved in placing laminated beams.
4. List some of the types of buildings that adapt to laminated construction.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Trade Terms

MATERIAL LIST FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Trade Terms

LESSON OBJECTIVES:

To familiarize the student with trade terms used in concrete construction.

REFERENCES:

Carpentry Apprenticeship Training Course, U. B. of C.

Modern Carpentry - Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Glossary
Modern Carpentry, Glossary
Burke Concrete Accessories

IMPORTANT STUDY POINTS:

1. Trade terms used in footings, walls, and pilasters.
2. Trade terms used in columns, girders, beams, and slabs.
3. Trade terms used in stairs, ramps, and walkways.

WORK ASSIGNMENT:

Classroom:

Define the following terms

1. Ties and connectors
2. Form material, shoring, bracing, and stripping.
3. Layout and detailing.
4. Imbedded items.
5. Ingredients of concrete.
6. Pouring, placing, screed pins.
7. Curing, concrete protection, testing.
8. Specifications and plans.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Footings, Walls, and Pilasters

MATERIAL FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Footings, Walls, and Pilasters

LESSON OBJECTIVES:

To familiarize the student with concrete construction involving footings, walls, and pilasters.

REFERENCES:

Carpentry Apprenticeship Training Course, U. B. of C.
Burke Concrete Accessories
Modern Carpentry - Wagner

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit 10, pp. 2, 11
Modern Carpentry, pp. 91-99
Burke Concrete accessories

IMPORTANT STUDY POINTS:

1. Bearing tests and excavations.
2. Footings, foundations and elevations, dimensions, and layouts.
3. Imbedded items, dimensions, and layout.
4. Concrete types, placings, pouring, and curing protection.
5. Ties and connections.

WORK ASSIGNMENT:

Classroom:

1. Math review.
2. Sketch sections of footing walls, and pilasters.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Columns, Girders, and Beams

MATERIAL LIST FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Columns, Girders, and Beams

LESSON OBJECTIVES:

To familiarize the student with concrete construction involving columns, girders, and beams.

REFERENCES:

Carpentry Apprenticeship Training Course, U. B. of C.
Burke Concrete Accessories
Modern Carpentry - Wagner

VISUAL AIDS:

STUDY ASSIGNMENTS:

U. B. of C., Unit 10, pp. 4-10
Burke Concrete Accessories
Modern Carpentry, page 97

IMPORTANT STUDY POINTS:

1. Columns, girders, and beams.
2. Miscellaneous imbedded items, opening in beams and layout.
3. Concrete types, placing, pouring, and curing.
4. Testing and stripping.

WORK ASSIGNMENTS:

Classroom:

1. Sketch sections of types of columns, girders, and beams.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Slabs

MATERIAL LIST FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Slabs

LESSON OBJECTIVES:

To familiarize the apprentice with the construction and assembly of forms for concrete slabs.

REFERENCES:

Burke Cocnrete Accessories
Carpentry Apprenticeship Training Course, U. B. of C.

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit X, pp. 13-17
Burke Concrete Accessories

IMPORTANT STUDY POINTS:

1. Understand the various metal scoffold and beam support systems.
2. Understand the installation of various pan systems.
3. Understand the necessity of fireproofing, with concrete on exposed steel members in a slab.
4. Learn the methods of installing supported wood joists and plywood decking for concrete slabs.

WORK ASSIGNMENT:

Classroom:

1. Make a sectional sketch of an elevated concrete slab form showing:

   a. False work or support systems.
   b. Pan systems.
   c. Bracing.
2. When is individual "T" shoring necessary under slab forms.
3. List the advantages and disadvantages of the supported wood joist and plywood decking systems.
4. When and why is concrete used as fireproofing of stuctural steel.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Slabs

MATERIAL LIST FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Slabs

LESSON OBJECTIVE:

To coordinate with the sub-trades in concrete placement and the safety factors involved.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Safety Standards (Red Book)
Burke Concrete Accessories
Manufacturers pamphlets

VISUAL AIDS:

STUDY ASSIGNMENTS:

U. B. of C., Safety, pp. 8-11
Burke Concrete Accessories
Safety Standards (Material Hoist, Material Handling and Storage)

IMPORTANT STUDY POINTS:

1. Organization and preplanning of the job site.
2. Learn the sub-trades that are affected by concrete placement.
3. Study the various methods of concrete placement.
4. Learn the important safety factors in regards to slab construction.
5. Learn the effects of weather conditions on concrete placement.

WORK ASSIGNMENTS:

Classroom:

1. What are some of the important rules when preparing for a concrete pour.
2. List how the electricians and plumbers are affected by a concrete pour.
3. Name the various types of equipment used in concrete placement.
4. What safety requirements are needed in concrete placement.
5. List the weather conditions that could affect a concrete pour.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Blockouts, reglets, and flashing

MATERIAL LIST FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Bockouts, Reglets, and Flashing

LESSON OBJECTIVE:

To understand the necessity of bockouts, reglets, and flashing, and the methods of placing.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Burke Concrete Accessories

VISUAL AIDS:

STUDY ASSIGNMENT:

U. B. of C., Unit II, pp. 29-33
Burke Concrete Accessories

IMPORTANT STUDY POINTS:

1. Understand the reasons for bulkheads and blockouts in concrete construction.
2. Become acquainted with several types of bockouts and how they are secured.
3. Learn the reasons for using reglets, flashing, and the methods of installing them.

WORK ASSIGNMENT:

Classroom:

1. Sketch a 24" X 24" blockout for a 10" wall.
2. Sketch a door buck for a metal jamb.
3. Detail a roof assembly which includes a parapet wall, cant strip, and flashing.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Slip forms and lift slabs

MATERIAL LIST FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Slip forms and Lift Slabs

LESSON OBJECTIVES:

To give the apprentices a working knowledge of slip forms and lift slab construction.

REFERENCES:

Burke Concrete Accessories
Manufacturers Pamphlets

VISUAL AIDS:

U. B. of C., Slip Form and Lift Slab films

STUDY ASSIGNMENT:

Burke Concrete Accessories
"Concrete Trends" (Kaiser Cement)

IMPORTANT STUDY POINTS:

1. Understand the principles of lift slab construction.
2. Know hwere slip forming can be used.
3. Learn how slip forms are construction, placed and slipped.
4. Understand the importance of curing agents and bond breakers on lift slab construction.

WORK ASSIGNMENT:

Classroom:

1. What are the advantages in the use of slip forming?
2. List the problems involved in placing and finishing of concrete in slip form construction.
3. What are the types of concrete mixes and addatives used in slip forming?
4. List the advantages in the uses of lift slab construction.
5. How are columns used in lift slab construction.
6. How and where are lifting collars used.
7. What type of concrete mix is generally used in lift slab construction?

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Stairs, ramps, and walkways

MATERIAL LIST FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Stairs, Ramps, and Walkways

LESSON OBJECTIVES:

To give the apprentice a working knowledge of forming for stairs, ramps, and walkways.

REFERENCES:

Modern Carpentry - Wagner
Carpenter Apprenticeship Training Course, U. B. of C.
State Safety Standards (Red Book)

VISUAL AIDS:

STUDY ASSIGNMENT:

1. Become acquainted with different methods of stair forming.
2. Understand the framing and shoring members used in construction and support of stair forms.
3. Become familiar with the safety standards required in stairway and ramp construction.

WORK ASSIGNMENT:

Classroom:

1. Sketch a section view of a stair form.
   a. A free standing form
   b. Between concrete walls
2. List the safety factors involved in stair construction. The angles allowable for stairs, ramps, and walkways.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Anchor bolts, fasteners, expansion and seismic joints

MATERIAL LIST FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Anchor Bolts, Fasteners, Expansion and Seismic Joints

LESSON OBJECTIVE:

To provide the apprentice with a working knowledge of anchor bolts, inserts, and various control joints.

REFERENCES:

Modern Carpentry - Wagner
Carpenter Apprenticeship Training Course, U. B. of C.
Burke Concrete Accessories

VISUAL AIDS:

STUDY ASSIGNMENTS:

U. B. of C., Unit X, pp. 18, 19, 23
U. B. of C., Unit III, pp. 11-13
Modern Carpentry
Burke Concrete Accessories

IMPORTANT STUDY POINTS:

1. Understand why anchor bolts and inserts are necessary in concrete construction.
2. Understand the reason for accuracy in placing anchor bolts.
3. Understand why expansion control joints are necessary in concrete construction.
4. Learn what different types of fasteners are used for brick, blocks, tile, and stone.
5. Learn where seismic joints are used and how they are sealed.

WORK ASSIGNMENT:

Classroom:

1. List the different types of fasteners used and their purpose.
2. In house construction what is the size and spacing of anchor bolts.
3. Why is it necessary to provide for expansion in concrete construction.
4. What materials are used to seal seismic joints.

Lab: Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Tilt-up Construction

MATERIAL LIST FOR NEXT LESSON:

CONCRETE CONSTRUCTION

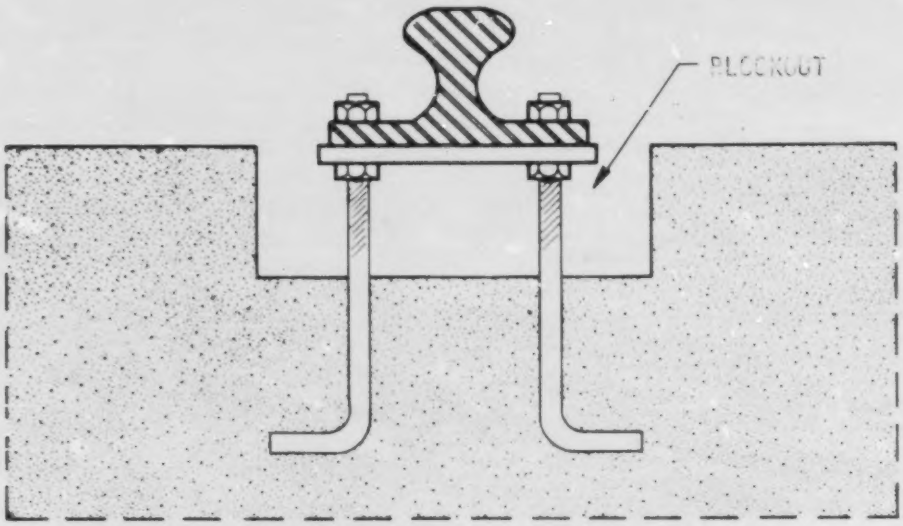
Anchor Bolts:

By checking the indexes of the usual carpentry references, the apprentice will discover that the sole use of anchor bolts is to secure the sill to the concrete foundation preparatory to setting the floor joists and flooring.

On concrete construction, anchor bolts serve an entirely different purpose. They are imbedded in concrete to secure rails for traveling cranes in industrial buildings, and used to secure the steel guides through which the gates slide to control the flow of water to the turbines in hydro-electric plants.

Because of the necessity of precision location of these members of steel when machinery is to be installed, in most cases the steel cannot be imbedded in the mass pour, because of the probablity of the wooden forms moving enough during the pour surface for the machinery riding against it, or securing to it.

Therefore, a bockout is usually set in the form, and anchor bolts set in it, projecting through the blockout sufficiently to receive the steel member that will bolt to it. Then the pour is made, forms stripped, and iron secured to the bolts. The advantage of the blockout is that in the event the forms shift a trifle one way or another during the concrete pour, the bolts project out and can be bent a little to still hold the iron in its designated position. Then the blockout is formed up and poured, with little chance of moving now, because of the small amount of concrete being poured in the blockout.



The above sketch shows typical section of blockout for crane rail for an overhead crane in an industrial plant or powerhouse.

UNIT 13: Concrete Construction

TOPIC: Tilt-Up Construction

LESSON OBJECTIVES:

To acquaint the apprentices with methods and advantages of tilt-up construction.

REFERENCES:

Burke Concrete Accessories
Carpenter Apprenticeship Training Course, U. B. of C.

VISUAL AIDS:

STUDY ASSIGNMENT:

Burke Concrete Accessories
U. B. of C., Unit X, pp. 30-41

IMPORTANT STUDY POINTS:

1. Learn the forming methods used in tilt-up construction.
2. Learn where slab lifting inserts are placed and how secured.
3. Learn the advantages of tilt-up construction.
4. Learn the methods of bracing, plumbing, and aligning tilt-ups.
5. Learn how tilt-up panel sections are joined together.
6. Learn the purpose of bond breaking agents and how used.

WORK ASSIGNMENT:

Classroom:

1. Sketch a method of forming tilt-up panels on a concrete slab.
2. List the advantages of tilt-up construction.
3. Sketch where the lifting inserts are placed in the panel and how they are secured.
4. Sketch a section view of a form used to connect two or more panels.
5. List the purpose of bond breaker agents and how used.

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Precast, prestressed, and post tension

MATERIAL LIST FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Precast, Prestressed, and Post Tension

LESSON OBJECTIVES:

To acquaint the apprentice with how to build precast concrete forms, and the advantage of precast concrete construction.

REFERENCES:

Carpenter Apprenticeship Training Course, U. B. of C.
Burke Concrete Accessories

VISUAL AIDS:

U. B. ov C., (Film) Building with prestressed concrete.

STUDY ASSIGNMENT:

Burke Concrete Accessories
U. B. of C., Unit X, pp. 42-46

IMPORTANT STUDY POINTS:

1. Learn the various forming methods used in precast, prestressed,
2. and post tension construction.
2. Learn the advantages of precast construction.
3. Learn the difference between prestressed and post tension.

WORK ASSIGNMENTS:

Classroom:

1. Sketch a form used in precasting concrete.
2. What is the purpose of prestressing and post tensioning concrete beams.
3. What type of equipment is needed to set precast concrete and some of the safety factors involved.

Lab:Lab:

Test:

INTRODUCTION TO NEXT LESSON:

Architectural concrete treatment

MATERIAL LIST FOR NEXT LESSON:

UNIT 13: Concrete Construction

TOPIC: Architectural Concrete Treatment

LESSON OBJECTIVES:

To acquaint the apprentice with the material used and effects achieved in architectural concrete treatment.

REFERENCES:

Manufacturers pamphlets

VISUAL AIDS:

STUDY ASSIGNMENT:

Manufacturers pamphlets

IMPORTANT STUDY POINTS:

1. Learn the various materials used in architectural treatment.
2. Learn how the material is applied to the concrete forms and what material is used as a releasing agent.
3. Learn the forming requirements for architectural concrete.

WORK ASSIGNMENT:

Classroom:

1. What material is used to form a crushed rock panel?
2. Sketch a form showing how architectural markings are formed.
3. What special care must be used in placing architectural concrete?
4. List the places in a building where architectural concrete is used.

Lab:

Test:

CARPENTRY
Apprentice Related Training

INSTRUCTOR'S MANUAL
4TH YEAR of a 4 YEAR SERIES

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COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION

VOCATIONAL EDUCATION

STATE OF WASHINGTON

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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FOREWORD

The Washington State Coordinating Council for Occupational Education, Trade and Industrial Section, is one of the agencies responsible for encouraging the development and promotion of the apprentice training program in this state and, under existing state law, is responsible in cooperation with local schools for providing technical and related instruction for all registered apprentices.

This course of related study in the Carpentry trade is designed to meet the need for organized study in the various technical aspects necessary for an apprentice to become a well-trained journeyman. The apprentice who works hard at learning his trade on-the-job, and who masters the related instructional material included in these lessons will master his trade and become a real asset to his trade and his community.

Arthur A. Binnie
Director and Executive Officer
Coordinating Council for Occupational Education

ACKNOWLEDGMENTS

The Washington State Coordinating Council for Occupational Education, Trade and Industrial Section, recognizes the valuable contribution made by the Revision Committee representing the Carpentry Trade in reviewing, revising, and updating the apprentice-related instruction material contained in this unit of the four-year related instruction curriculum.

The following members are actively engaged in the trade and each made a substantial contribution to the project.

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We further wish to acknowledge the encouragement and support given by members and staff of the Washington State Apprenticeship Council, the Washington State Council of Carpenters, representatives to the United Brotherhood of Carpenters and Joiners of America, representatives of the Associated General Contractors and of the Master Homebuilders.

Special thanks are extended to Coordinators Bob Buckingham, Leonard Liebelt and Mack Johnson, and to Mr. Earle Bennett, Project Director, who kept us all working to complete the project; to Mr. Steve Bishopp, Program Specialist, CCOE, who designed the covers and handled the printing arrangements; and to the T & I Secretarial staff for the typing and other support work.

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INTRODUCTION

The fourth year's work in Carpentry Apprentice Related Training presented a unique problem in preparing the manual for instructors.

Since the committee wanted a major part of the 144 hours of instruction to be available for review and refreshing of the first 3 year's work, a minimum of new material was planned for this year's work.

Several suggestions:

1. Analysis of retention of previous work should be thorough.

2. Individual help should be given to apprentices to cover any deficiencies found.

3. The alloted time for each unit will vary depending on local needs and the published hourly unit allocation is only a broad guide.

4. The instructor will use the help of the local apprentice committee and JATC Coordinator in securing additional resource material including manufacurers' pamphlets, and visual aids for class use.

REFERENCES:

Architectural Graphic Standards, 6th Edition, Ramsey and Sleeper, Publisher

Blueprint Reading & Sketching, Carpentry Trades, Delmar Publishers

Carpentry Apprentice Training Course, United Brotherhood of Carpenters & Joiners of America

Carpentry Apprentice Related Training Manuals, I, II and III., State of Washington

Manufacturer's Instrument Manuals

Modern Carpentry, by Wagner, Goodhert-Willcox, So. Holland, Ill.

National Construction Estimating

Simplified Estimating by Rogers & Wilson and Simmons and Boardmon

Simplified Roof Framing, Wilson, Werner

Uniform Building Code

VISUAL AIDS:

Blueprints of Residential Structures and of Commercial Structures

Extensive Use of Transparencies as are available

Films as available

U. B. of C. Transparencies & Color Slides of:
"Transit Level, Dumpy Level"
"Line Levels"
"Hand Levels"
"Water Levels"
"Builder's Level"

Use aids suggested in Manuals I, II, and III

NOTE: Your JATC Coordinator can be of help in suggesting sources of the above and other visual aids.

COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION

OLYMPIA, WASHINGTON

LEGISLATION AFFECTING WORKERS - REVISED TO FEBRUARY 1, 1971

In recent years many laws have been passed on both federal and state levels that directly affect the working man, his family and dependents. In the apprentice training time available we cannot go into detail about all this legislation. In this lesson the highlights of the most important laws will be discussed. If an apprentice wishes to seek further detailed knowledge about any of them, he should contact his public library, one of the local offices indicated, his employer or his union. Included in this lesson are industrial insurance, unemployment compensation, old age and survivor's insurance, and wages and hours laws.

A. INDUSTRIAL INSURANCE (WORKMEN'S COMPENSATION ACT)

One of the purposes of the Workmen's Compensation Act is to afford to the worker certain and speedy relief in case of industrial accident. The purpose of this lesson is to reduce the law to simple and understandable terms, and to assist in promptly obtaining all the benefits of the Workmen's Compensation Act of the State of Washington. This information is general in nature, and is to serve as a guide in the situations which are most likely to arise under the Act.

1. Workers covered: Generally speaking, all employees engaged in manual labor are automatically covered. Deductions which are automatically made from salary or wages for medical aid (this should not be confused with health coverage as it requires the consent of employee) are proof of coverage by Workmen's Compensation Act. However, employees may be covered without deductions for medical aid being taken from their salary or wages if the employer chooses to absorb these premiums rather than charge them to the employee.

With the approval of their employer, employees who are not otherwise covered may obtain coverage. Such coverage must, of course, be obtained prior to the injury for which a claim is to be made. Forms and information may be obtained from any Service Location of the State Department of Labor and Industries or from the main office in Olympia.

2. How the Workmen's Compensation Act is financed: The premiums for medical benefits, called medical aid premiums, are paid one-half by the employer and one-half by the employee through payroll deductions. It is not unlawful, however, for the employer to absorb the entire medical aid premium and not charge any part of it to the employee.

The premiums for compensation benefits, including monthly compensation for loss of time from work and all disability awards and pensions (called industrial insurance premiums) are paid entirely by the employer. It is unlawful for the employer to charge or deduct from wages or salary any part of such premiums.

Rights to compensation and medical care are not affected by any other insurance which the employee may have. Employees can accept any benefits to which they may be entitled under any other type of insurance and in addition thereto be entitled to receive full industrial insurance benefits from the Department of Labor and Industries.

Payment cannot be reached by creditors through garnishment, execution or attachment until such time as the warrant covering such payment has actually been delivered to the employee by the Department of Labor and Industries.

3. Industrial insurance benefits:

a. Medical benefits include doctor, hospital and nursing care, including x-rays and drugs prescribed by your attending physician, glasses, dental repairs and dentures, artificial appliances, eyes and limbs, where necessary because of an industrial injury or occupational disease.

b. Compensation for loss of time from work is not paid for the day of injury or the three days following said injury, unles the disability continues for 30 or more consecutive calendar days from date of injury. If employer continues to pay full wages or salary, by other than vacation pay, the employee is not entitled to receive monthly time loss compensation. If employee returns to work before his claim is closed and is unable to earn full previous wage or salary due to injury, he will receive the proportionate share of monthly time loss compensation. Scheduled rate of compensation payments for injuries occurring on or after August 6, 1965, are as follows:

SINGLE	$ 185.00
MARRIED	215.00
MARRIED with ONE child under 18 years	252.00
MARRIED with TWO children under 18 years	283.00
MARRIED with THREE children under 18 years	306.00
MARRIED with FOUR children under 18 years	329.00
MARRIED with FIVE children under 18 years	352.00

Payment of monthly time loss compensation has no relationship to whetherthe claimant is receiving vocational rehabilitation services, but is allowed only when his condition, due to his injury, prevents him from working and is not yet medically fixed. Rate of compensation is governed by the law in effect on the day of the injury.

c. Compensation for permanent partial disability: Lump sum award for injury which causes some permanent partial disability but which does not prevent worker from resuming some gainful occupation. Amount of compensation to which employee is entitled is based on certain schedules which are set forth in the law. Awards vary from $270.00 for loss of little finger at distal joint to $15,000.00 for loss of arm or leg at shoulder of hip joint.

d. Compensation for permanent total disability: Provision is made for a pension to a totally permanently disabled worker (added payments for children under 18 years) and pension thereafter to his widow. A total permanently disabled worker is one whose injury completely and permanently disables the worker from regularly following a gainful occupation. A single worker's monthly compensation is $185.00, a married worker's $215.00, a widow with or without minor children $140.00, the youngest child $37.00, next youngest $31.00, each additional child $23.00 (for a maximum of five children.)

e. Compensation for fatal injuries: Provision is made for a pension for widow or invalid widower and for minor children of a worker killed in an industrial accident. The widow or invalid widower would receive $140.00 per month, the youngest child $37.00, the next youngest child $31.00, each additional child $23.00, with maximum for the family $277.00.

4. Ten commandments for injured workmen:

1. Immediately upon the occurrence of an injury give notice of such injury, regardless of how trivial it may appear to be. Report to the person designated by the employer to receive notice of accidents.

2. As soon as employee is physically able he should fill out Report of Accident (or Report of Occupational Disease), at the doctor's office of the hospital. This report should be left with the doctor.

3. After employee has completed his part of the Report of Accident and left it with the doctor, he should check to see that the report is completed by the doctor and mailed to the employer.

4. After four weeks from the signing of the Report of Accident, if some word or acknowledgement has not been received, check with the employer to see if report was received by him from the doctor, acted upon, and turned in to the Department of Labor and Industries.

5. After six weeks, if still no acknowledgment has been received, advise the Department of Labor and Industries through a Service Location or by writing directly to the main office in Olympia, giving name and address of employer, the doctor, nature of injury, and the date of injury. No action can be taken until report is filed.

6. As soon as possible employee should get the names and addresses of all witnesses who saw the accident or who have knowledge concerning the same and have such information available if there is an investigation of the claim.

7. While employee is off work, he will receive each month a postal card, called a "certificate of disability", containing portions to be filled in by the doctor and by the workman. This card should promptly be filled in by both doctor and employee and returned to the Department of Labor and Industries. Payment cannot be made for loss of time from work until this card is returned.

8. Read all communications from the Department of Labor and Industries and follow carefully all instructions.

9. After an award of compensation has been made to the employee (or other final action taken, such as rejection) which he believes to be incorrect or unlawful, he must apply for reconsideration within sixty days after receipt of printed order.

10. After a claim is closed, application for further compensation or treatment can be made providing that employee's condition has become worse since the closing of the claim. Such application must be filed with the Department of Labor and Industries within five years from the date of the closing order.

5. Filing limitations: A workman loses his rights, irrespective of the merits of his claim, unless he meets certain deadlines for filing necessary reports and applications with the Department of Labor and Industries. These limitations are as follows:

Time limit for filing of claim: 1 year after the day upon which the injury occurred.

Time limit for protest or request for reconsideration of an order of the Department must be received by the Department within 60 days from date of receipt of the order. This also applies to appeals to the Board of Industrial Insurance Appeals which is a separate agency composed of a representative from labor, one from management and one from the general public.

Time limit for appealing to court from the Board of Insurance Appeals final order: 30 days.

Time limit for requesting reopening of claim: 5 years

NOTE: Information regarding Industrial Insurance was taken from a pamphlet entitled: "Reference Manual Relative to Benefits Under Workmen's Compensation and Medical Aid Acts, State of Washington" and published by the Department of Labor and Industries of the State of Washington. For copies of this manual and for additional information contact any of the following Service Locations or the Department of Labor and Industries:

Aberdeen	Everett	Port Angeles	Vancouver
Bellingham	Kennewick	Seattle	Wenatchee
Bremerton	Longview	Spokane	Yakima
Ephrata	Mount Vernon	Tacoma	

B. UNEMPLOYMENT COMPENSATION

Under the Federal-State system of unemployment compensation, established under the Federal Social Security Act and the Washington State Employment Security Act, there has been developed the particular program that seems best adapted to conditions prevailing within this state. It is important that apprentices know the details of the employment security program and understand how it functions.

1. Who is covered? In the State of Washington a worker in any firm employing one person at any time is covered by the plan, unless specifically excluded such as: agricultural labor, domestic service in private homes, service for relatives, and self-employment including agents on commission.

2. How is the program financed? This state finances unemployment benefits mainly by contributions from employers on the wages of their workers. There is no tax on employees or deduction from wages. The funds collected are held for the state in the unemployment trust fund (at interest) in the United States Treasury. From this fund, money is drawn to pay benefits. The maximum rate for employer contribution is 2.7% of wages paid, limited to the first $4,200.00 earned by each worker within a calendar year. Congress makes appropriations for the cost of administration of this Federal-State program.

3. How does one qualify for benefits?

a. You must be unemployed to the extent that your earnings are less than your benefits would be for total unemployment.

b. You must have earned not less than $1100 in the first four of the last five completed calendar quarters prior to the quarter in which you file the initial claim for benefits. (The qualifying amount is adjusted annually.)

c. You must register for work with the Employment Service.

d. You must file a claim for benefits (by mail if necessary) and must serve one "waiting week" during which you are not employed.

e. You must be actively seeking work, be physically able to work, and immediately available for work.

f. You must report each week in person unless directed otherwise by the person taking your claim.

4. What are the benefits? The amount of your benefits is determined by your earnings during the four-quarter period mentioned in 3 b. That four-quarter period is called the base year.

5. What will cause one to become disqualified?

a. Failure to apply for available suitable work or refusal to accept suitable work without good cause disqualifies for benefits from the date of such failure or refusal and until the individual returns to work and earns an amount equal to his weekly benefit amount in each of five calendar weeks.

b. Voluntarily quitting work without good cause disqualifies for benefits for that week and for the next ten weeks.

c. Being discharged or suspended for misconduct connected with your work disqualifies for benefits for that week and for the next ten weeks.

d. Knowingly withholding a material fact or making a misrepresentation or false statement in order to obtain benefits disqualifies for benefits for that week and for an additional 26 weeks whenever a claim is filed after being thus disqualified. Criminal prosecution is also a possibility.

e. Being out of work because of labor and management disputes, generally speaking, disqualifies for benefits.

6. Can one appeal a determination of disqualification? An appeal in writing submitted within ten days of the mailing or personal delivery of a notice of disqualification, and delivered to the State Employment Security Office or a local office, will be considered first by an examiner of the department. A second appeal will be heard and determined by the Employment Security Commissioner. Following this, appeal may be made to the courts.

7. Administration. In this state unemployment compensation is administered through the Employment Security Department of the State government. Its executive officer is the Commissioner, who appoints nine members to a state advisory council (3 employers, 3 employees, 3 public). The state council shall aid the agency in formulating policy and discuss problems related to the administration of the unemployment insurance act and assure impartiality and freedom from political influence in the solution of such problems. All employees of the department, except policy-making heads, are appointed on a merit basis.

Information taken from:

Comparison of State Unemployment Insurance Laws as of July 6, 1969, published by the United States Department of Labor, Bureau of Unemployment Security, and

Unemployment Compensation Information for Claimants SF 8139 (Rev. 11-70)

C. SOCIAL SECURITY (Old Age Survivors Insurance)

The social security act was established by Congress in 1935, at which time the Social Security Board consisting of three members nominated by the President and confirmed by the Senate was established to administer the program of old age and survivors insurance for industrial and commercial workers and their dependents.

The President's reorganization plan No. 2, effective July 6, 1946, abolished the three-member Social Security Board and transferred its functions, as well as certain other federal functions, to the Federal Security Administrator, head of the Federal Security Agency, of which the Social Security Board was a part. On that date the Social Security Administration was established, with the former Chairman of the Board as Commissioner for Social Security.

On April 11, 1953, the Department of Health, Education and Welfare was established with the Social Security Administration as a component of that department. Within the Social Security Administration are four bureaus: Bureau of Old-Age and Survivors Insurance; Bureau of Public Assistance; Children's Bureau; Bureau of Federal Credit Unions.

The Social Security Act has been amended several times since its original passage. As a result, monthly benefits may be paid to the families of retired, disabled, or deceased workers, as well as to the retired or disabled person himself. The benefit amounts have been materially increased over the years until now the minimum benefit amount is $64.00 and the maximum is $434.40 a month on any one social security account. The benefit amounts are subject to fluctuation and current amounts can be ascertained by inquiry at any Social Security Administration office or from their publication SSI-35. Coverage has been extended so that now over nine out of every ten persons earning a living are covered under the program. The following summary describes the old-age, survivors and disability insurance program including the amendments of 1970.

1. Benefits payable to:

a. Retired worker age 65 or woman worker age 62.

b. Wife of retired worker if she is age 62 or over, or regardless of age if entitled child under 18 or adult disabled child is present. Dependent husband* of retired worker if he is age 65 or over.

c. Widow or dependent widower,* age 62 or over, of deceased worker.

d. Children (under age 18) of retired worker, and children of deceased worker and their mother (the worker's widow, or in some cases his divorced wife) regardless of her age. Adult disabled children qualify as though they were under age 18.

e. Dependent parents,* age 65 for father, 62 for mother, or over, of deceased worker.

f. In addition, a lump sum payment upon death of an insured worker.

* Proof of dependency must, in general be filed within two years of worker's entitlement in cases of a dependent husband, and within two years of death in cases of a dependent widower or dependent parent.

2. Insured status:

a. Based on "quarters of coverage." An individual paid $50 or more of non-farm wages in a calendar quarter is credited with a quarter of coverage for the quarter. ($7800 of wages in a year automatically gives four quarters of coverage.) An individual paid $100 or more of farm wages in a year is credited with one quarter of coverage for each full $100 of such wages($400 or more of such wages automatically gives four quarters of coverage.) An individual with creditable self-employment income in a year (in general, $400 or more) automatically receives four quarters of coverage.

b. Fully insured status gives eligibility for all benefits except dependent husband's benefits and dependent widower's benefits, which require both fully and currently insured status, and child's benefits in respect to a married woman which may be payable only if she has currently insured status. A fully insured person is one who at or after attainment of retirement age, onset of disability, or death fulfills any one of the following three alternative requirements:

1. Has 40 quarters of coverage.
2. Has at least 6 quarters of coverage and at least one quarter of coverage (acquired at any time after 1936) for every two quarters elapsing after 1950 (or age 21, if later) and before retirement age, onset of disability, or death.
3. Has a quarter of coverage in all but four of the quarters after 1954 (but not including the quarter in which he attains retirement age, becomes disabled or dies.)

Most persons who become fully insured will go under the first or second alternatives. The second alternative enables a person who attained retirement age after July 1954 to become fully insured with just six quarters of coverage acquired at any time. Elderly persons who are newly covered under the 1954 or 1956 Amendments may meet the third alternative even though not the second. The third alternative is not effective in any case for persons reaching age 65 or dying after September, 1960.

c. Currently insured status (eligible only for child, mother, and lump-sum survivor benefits; necessary for husband's and widower's benefits) requires 6 quarters of coverage within 13 quarters preceding death or entitlement to old-age benefits.

3. Primary insurance amount:

a. The primary insurance amount is the amount paid to the retired or disabled worker. It is derived from the insured person's average monthly earnings. For those now qualifying for benefits for the first time, average monthly earnings are determined by dividing all covered earnings by all months after December 31, 1936, December 31, 1950, or the last day of the year in which a person reaches age 21, if that date is later than January 1, 1951. The closing date for figuring this average monthly earnings figure is ordinarily the first day of the year in which the person becomes disabled, files his application after reaching retirement age, or dies. As many as five years of the lowest earnings can be dropped out of this computation.

b. The minimum retirement benefit is $64.00 a month and the maximum is $250.70.

c. If a woman elects to receive her benefits starting at age 62 rather than waiting until 65, her payment will be reduced by 20%.

4. Benefits Amounts for Dependents and Survivors, Relative to Worker's Primary Insurance Amount:

a. Wife or dependent husband--one-half of primary. (Wife's benefit will be reduced by 25% if she files at age 62.)
b. Widow or dependent widower--three-fourths of primary.
c. Child--one-half of primary, except that for deceased worker's family, an additional one-quarter of primary is divided among the children.
d. Dependent parent--three-fourths of primary.
e. Lump-sum death payment--three times primary, with $255 maximum.
f. Maximum family benefit is $434.40.
g. Minimum amounts payable to any survivor beneficiary where only one is receiving benefits is $38.90.
h. For examples of monthly payments beginning January 1, 1970, see pamphlet publication of the U. S. Department of Health, Education and Welfard, Social Security Administration SSI-35, May, 1970.

5. Employment permitted without suspension of benefits (Called "Work Clause" or "Retirement Test"):

A beneficiary can earn $1680 in a year in any employment, covered or noncovered, without loss of benefits. In no case, however, are benefits withheld for any month in which the beneficiary's remuneration as an employee was $140 or less and in which he rendered no substantial services in self-employment. For beneficiaries age 72 or over, there is no limitation. If a retired worker's benefit is suspended, so also are the benefits of his dependents.

6. Covered employment:

a. All employment listed below which takes place in the 48 states, the District of Columbia, Alaska, Hawaii, Puerto Rico, or the Virgin Islands, or which is performed outside the United States by American citizens employed by an American employer, (or, by election, by an American citizen employed by a foreign subsidiary of an American employer) is covered employment. Also covered, under certain conditions, is employment on American ships and aircraft outside the United States.

b. Individuals engaged in the following types of employment are covered:

1. Virtually all employees in industry and commerce other than long-service railroad workers (the service of those who retire or die with less than ten years of railroad service is covered.)

2. Farm and nonfarm self-employed with $400 or more of net earnings from covered self-employment.

3. State and local government employees not covered by a retirement system, and those covered by a retirement system on a referendum basis in which a majority of those eligible to vote are in favor of coverage; in any event, the State must elect such coverage.

4. Nonfarm domestic workers (based on $50 in cash wages from one employer in a quarter.)

5. Farm workers, including farm domestic workers (based on $150 or more in cash wages from any one employer in a year.)

6. Ministers and members of religious orders (other than those who have taken a vow of poverty) either employed by non-profit institutions (in positions which only a minister can fill) or self-employed are covered on individual elective basis as self-employed. Other employees of non-profit institutions are covered on elective basis; employer must elect coverage, and at least two-thirds of employees must concur in coverage (then all employees concurring in coverage and all new employees are covered).

7. Federal employees who are not now covered by retirement system established by law of the United States other than a few specifically excluded small categories.

8. Definition of "employee" is broadened from strict common-law rule to include following groups as "employees"; full-time wholesale salesmen; full-time life insurance salesmen; agent-drivers and commission drivers distributing meat, vegetable or fruit products, bakery products, beverages (other than milk), or laundry or dry cleaning services; and industrial homeworkers paid at least $50 in cash during a quarter and working under specifications supplied by employer.

9. Members of the Armed Forces.

7. Wage credits for World War II and subsequent military service:

World War II veterans and those in service thereafter (including those who die in service) are given wage credits of $160 for each month of active military (including naval) service in World War II and thereafter through December, 1956, except that credit is not given if service is used for any other Federal retirement or survivor system (other than compensation or pensions payable by the Veterans Administration); additional cost is to be borne by trust fund.

8. Maximum annual wage and self-employment income for benefit and contribution purposes:

$4800 per year for 1959 and after ($4200 in 1955-58, $3600 in 1951-54 and $3000 before 1951). $6600 in 1966-67, $7800 in 1968-____.

9. Tax (or contribution) rates:

a. 2-1/4% on employer and 2-1/4% on employee through 1958, 2-1/2% for 1959, 3% for 1960-62, 3-1/2% for 1963-65, 4.2% for 1966, 4.4% for 1967-68, 4.8% for 1969-70, 5.2% for 1971-____.

b. For self-employed the rate is 1-1/2 times that for employees. Self-employment income taxed is, in general, net income from trade or business; special optional provisions based on 50% of gross income are available for farmers with low net income.

c. No provisions for authorizing appropriations from general revenues to assist in financing the program.

For further information contact one of the 13 district Social Security offices in the following Washington cities. The offices are listed in local phone books under "United States Government, Health, Education and Welfare, Dept. of."

Aberdeen
Bellingham
Bremerton
Everett
Lewiston, Idaho
Olympia
Seattle
Spokane
Tacoma
Vancouver
Walla Walla
Wenatchee
Yakima

D. FEDERAL WAGE AND HOUR LAW

The Fair Labor Standards Act of 1938, known as the Federal Wage and Hour Law, was approved by the President on 25 June, 1938, and became effective 24 October 1938. This legislation is one of the most important labor measures adopted in recent years, for it seeks to correct and to eliminate as rapidly as possible in industries engaged in interstate commerce or in the production of goods for interstate commerce, or enterprises with an annual dollar volume in excess of $250,000, labor conditions detrimental to the maintenance of minimum standards of health, efficiency and general well-being.

The Law creates a Division of Wages and Hours within the Department of Labor under the direction of an administrator appointed by the President by and with the advice of the Senate.

The Fair Labor Standards have been amended, the latest effective February 1, 1967, providing the following standards: A minimum wage of $1.60 an hour; time and one-half pay for overtime after 40 hours (except where otherwise specially provided); a minimum age of 14 years for general employment (except for occupations declared hazardous and certain occupations outside of school hours).

The child labor provisions of the law prohibit producers, manufacturers, and dealers from shipping through interstate commerce, goods produced in an establishment in which within 30 days prior to shipment oppressive child labor has been used. The term "oppressive child labor" applies to employees under the age of 14 years in any occupation or employees between the ages of 16 and 18 in any occupation which has been found and declared by the Children's Bureau to be particularly hazardous for children or detrimental to their health and well-being.

Farm workers, newspaper delivery boys, employees in small (under $250,000) retail and service establishments, employees of street, suburban, interurban electric railway or motor bus carriers, seamen, and persons employed in bona fide executive, administrative, and professional capacities are exempt from both the wage and hour provisions of the law.

The act has conferred broad investigatory powers on the Administrator as to wages, hours and other conditions and practices of employment in any industry subject to the act. He may utilize the services of the bureaus and divisions of the Department of Labor for necessary investigations and inspections, as well as the services of the State and local agencies. The Administrator is empowered to order employers to maintain adequate records on wages and hours.

The law provides that any person wilfully violating the Act is subject to a fine and imprisonment. However, no penalty or imprisonment may be imposed for a first offense. An employer violating the hour or wage provisions of the Act may be liable to his employees for twice the difference between the wage received and the legal minimum wage, and also for any unpaid overtime compensation.

For further information see "Handy Reference Guide to the Fair Labor Standards Act" and CL 101, or Fair Labor Standards Act of 1938 as Amended, U.S.D.L. Publication 1167.

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NOTE: Instructors should be alert to legislative changes affecting the worker. References below are to sources of information in the several departments and their informative manuals which are kept up to date and available at the listed locations.

A. Reference Manual relative to benefits under the Workmen's Compensation and Medical Aid Acts

State Industrial Insurance Office
State Administration Building, Olympia, Washington

B. Unemployment Compensation Information for Claimants S.F. 8139 (Rev. 11-70)

Employment Security Building, Room 417
Olympia, Washington

C. Your Social Security SSI-35

Social Security Administration
1007 South Washington Street
Olympia, Washington

D. The Construction Industry Under Fair Labor Standards Act W.H. 1310 Oct. 70

Regulations - Labor Standards Provisions WHPC #1244

Public Contracts Act - Rulings and Interpretations No. 3 - May 1963

U. S. Department of Labor
Smith Tower Building Room 1821
Seattle, Washington

UNIT 14: BLUEPRINTS

A. Suggested hours for this Unit: 32

B. Objectives for this Unit:
1. Comprehend, interpret, and translate the extent of blueprints and apply the learned knowledge necessary to construct a building.
2. Learn to read blueprints and coordinate with specifications.
3. Gain knowledge of blueprint convections and symbols.
4. Determine weak points and upgrade where necessary.
5. Learn to draw details.

C. References:
Carpentry Apprentice Training Course, U. B. of C.
Modern Carpentry, Wagner
Blueprint Reading and Sketching, Carpentry Trades, Delmar Publishers
Carpentry Manuals 1, 2, and 3
Uniform Building Code
Architectural Graphic Standards, 6th Edition, Ramsey and Sleeper

D. Visual Aids:
Extensive use of transparencies
Blueprints of residential structures and of commercial structures
Films as available

E. Resource People:
Use local JATC members as available in the area.

F. Lab Work:
Have students do detail and sectional drawings from residential and commercial building plans.

Test

UNIT 15· ESTIMATING - BASIC PRINCIPLES

A. Suggested hours for this Unit: 24

B. Objectives for this Unit:
1. To acquire the skill to take off a material list from a blueprint.
2. Teach the apprentice how to estimate the quantities of material required for any given building or project.
3. Knowledge of basic techniques.
4. Make student aware of proper use of material and quantities needed for constructing a project.

C. References:
Simplified Estimating by Wilson and Rogers and by Simmons and Boardmon
National Construction Estimating
Carpentry Training Course, U. B. of C.
Modern Carpentry, Wagner

D. Visual Aids:
Blueprints

E. Resource People and Topics:
Local construction estimators as available in area.

F. Lab Work:

Test - Have student make a material list from any set of prints; house plans, commercial building or bridge structure.

UNIT 16: INSTRUMENTATION - BASIC PRINCIPLES

A. Suggested hours for this Unit: 16

B. Objectives for this Unit:
1. To acquaint the apprentice with the care and use of various types of levels; how to set up leveling instruments.
2. To teach the apprentice the importance of accuracy and carefulness in using instruments.
3. Learn how to establish building lines, grades and grade points; also, how to shoot grades, lines and angles.

C. References:
Carpentry Apprentice Training Course, U. B. of C. - Leveling Instruments
Modern Carpentry, Wagner - Unit 3
Carpentry Manuals 1, 2 and 3
Manufacturers' Instrument Manuals

D. Visual Aids:
Contact local suppliers for films
U. B. of C. Transparencies and color slides:
"Transit Level, Dumpy Level"
"Line Levels"
"Hand Levels"
"Water Levels"
"Builder's Level"

E. Resource People and Topics:
Available instructors
Suppliers

F. Lab Work:
Have student set up and work several problems with instruments
Set up instruments
Use visual aids
Shoot and establish grades and elevations

UNIT 17: ANALYSIS AND REVIEW OF ALL WORK IN THE FOUR YEARS OF RELATED INSTRUCTION

A. Suggested hours for this Unit: 72

B. Objectives for this Unit:
1. Review the previous four years of study material to determine the apprentices' retention.
2. Determine by pretesting and post-testing and by the apprentice's own acknowledgement of what he feels he needs.

C. References:
Apprentice Training Course, U. B. of C.
Modern Carpentry - Wagner
Simplified Roof Framing, Wilson, Werner
Washington State Carpentry Manuals 1, 2, 3, and 4

D. Visual Aids:
Materials suggested in Manuals 1, 2, 3 and 4
New films such as Safety and OSHA from State and Federal
Appropriate films and slides as available
Transparencies

E. Lab Work:
Where needed to bring apprentice to journeyman proficiency in various areas such as rafter cutting, stair layout and cutting, windows, doors.

RELATED INSTRUCTION FOR CARPENTRY APPRENTICES

UNIT:

TOPIC:

LESSON OBJECTIVES:

REFERENCES:

VISUAL AIDS:

STUDY ASSIGNMENT:

IMPORTANT STUDY POINTS:

WORK ASSIGNMENTS:

Classroom:

Lab:

Test:

INTRODUCTION TO NEXT LESSON:

MATERIAL LIST FOR NEXT LESSON:

The document originally contained 50 additional pages, all identical to this one.